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LECTURES

ON THE

PRINCIPLES AND PRACTICE

OF

MIDWIFERY.

BY

JAMES BLUNDELL, M.D.,

FORMERLY

LECTURER ON MIDWIFERY AND PHYSIOLOGY AT GUY'S HOSPITAL.

EDITED BY

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Philadelphia:

ED. BARRINGTON & GEO. D. HASWELL.

NEW YORK — J. & H. G. LANGLEY: CHARLESTON, S. C. — WM. H. BERRETT.
RICHMOND, VA. — SMITH, DRINKER, AND MORRIS.
LOUISVILLE, KY. — JAMES MAXWELL, JR.

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PREFACE.

The retirement of one of the most original, powerful, and eloquent lecturers from the chair at Guy's Hospital, is a circumstance of so serious a character, that our first impulse is to pronounce the loss irreparable; and, although we do not willingly forsake our confidence in the rising talents and expanding prospects of the profession, we confess we feel a sorrowing conviction that his place will long remain empty.

To the unaffected eloquence of Dr. Blundell, his extensive and exact knowledge of the subject on which he treats, the peculiarly delightful manner in which that knowledge is imparted, and to the combined and resplendent talent of the venerable and sagacious Haighton, the intrepid Cooper, the reflective Travers, and the imaginative and philosophic Curry, the present celebrity, high character, and eminent prosperity of the Borough schools must principally be attributed. Under their successors, the Editor earnestly hopes his Alma Mater may long retain its well-won honours.

Those who have had the great advantage and delight of listening to the Lectures contained in this volume, will find a permanent and accurate record, most desirable for study and reference. To the student who was denied that privilege, these records will prove invaluable, as Dr. Blundell has, it is understood, finally retired from publicly lecturing.

The accurate information this work contains, the lively, energetic, and agreeable manner in which that information is communicated, the vivid and ingenious illustrations of every part, and each division of the subject, are most admirable. The bold, fearless, and perfectly original proposals of novel modes of treatment, for diseases at the present æra usually considered irremediable,

denote a consciousness of power, an independent and unshackled mode of thinking, and a mental superiority, which cannot fail to hand the name of Blundell down to future generations, as the Lord Bacon of our profession.

The publication of lectures has sometimes been regarded as an infringement of that right which every author has to his own productions: yet when it is remembered, that instruction is thus widely circulated, not merely to successive audiences of two or three hundred students, but throughout the whole profession, this vast extension of the most valuable species of information may be regarded as fully counterbalancing the disadvantages. There is, perhaps, no one so competent as Dr. Blundell to give the world a systematic treatise on the subject to which he has devoted so much attention; but the profession must, at present, content themselves with being supplied with the substance of his oral instruction.

It is highly probable that many future improvements of obstetric and surgical practice will owe their origin to the hints thrown out by Dr. Blundell in the following lectures. Taught by his wonderfully suggestive genius, practitioners will hereafter be enabled to rescue their fellow-creatures from what, at present, too frequently appears hopeless suffering, or even inevitable death. The Editor believes it is no over-sanguine hope, — no unwarranted, fallacious prophecy, that points to the period, when, instead of languidly lingering in hopeless, helpless agony over scenes where death now triumphs in its most horrifying, unwelcome, and unexpected form, medical science, cheered and emboldened by the consciousness that it brings efficient aid, shall close for a while the gates of the grave, — prolong life when life is dearest, — preserve the mother to her babe, — the wife to her husband!

Dr. Blundell's powerful mind has ever been directed to the enlargement of the boundaries of our art, the discovery of new resources, and to the mitigation, or removal of diseases, usually considered by the profession as only susceptible of palliation. These proposals should be carefully preserved, and subjected to frequent consideration and cautious experiment, for they spring from a rich and well-trained mind, and regarded as the noblest gifts which genius can offer at the shrine of humanity. These proposals incidentally made in the following lectures must always render this volume a treasure beyond all price to the experienced and mature practitioner; while to the student, the decisions of so

able a teacher should be regarded with the respect due to the most distinguished obstetric physician of their age and country. Though deprived of the benefit of listening to Dr. Blundell's instruction, the student is supplied, in this volume, with the information imparted, in the very language of the lecturer.

The obstetric practitioner cannot conscientiously fulfil his important duties, or keep pace with the improved state of the profession, without making himself thoroughly conversant with the able directions contained in these lectures, wherein so unusual and perhaps unparalleled a portion of experience, genius, and invention are all made to bear on one engrossing subject. The fame of Dr. Blundell is firmly established; — his successful efforts to enlarge the sphere of knowledge and usefulness must insure to these lectures universal circulation, wherever genius is appreciated, science regarded, and humanity valued.

The Editor repeats, that all who would conscientiously fulfil the arduous, important, and onerous duties of our profession, will know well how to appreciate the value and utility of the contents of this volume, and will join frequently with him in saying of Dr. Blundell, "this is not one *of* the million, but one *in* a million, for his speech bewrayeth him."

C. S.

Bolt Court, Fleet Street.

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LECTURES

ON THE

THEORY AND PRACTICE OF MIDWIFERY.

LECTURE I.

By the term midwifery, you are to understand that part of the art and science of medicine, which has for its object the consideration of the *structure, functions*, and *diseases* of the *female system* in general, more especially of the *female genitals*.

Though the art and science of midwifery, thus defined, is somewhat circumscribed, yet you will find that it may with advantage be divided for our further consideration into different sections. Without wasting your time or my own by entering into long disquisitions respecting the advantages or defects of different modes, I shall endeavour plainly to lay before you that system of arrangement which I propose myself to adopt.

To the student of midwifery, I conceive it is of the first importance, in order that he may thoroughly understand the process of delivery, that he should be acquainted with the *pelvis*, the *child*, and the *softer parts* in connexion with the pelvis, so far as the properties of those are concerned in the process of parturition: this, therefore, will form the first section of our subject.

Although the process of delivery, with the exception of a few extraordinary cases, is always essentially the same, yet we find this process varying a good deal in the circumstances by which it is accompanied; and this diversity of circumstances requires, occasionally, a corresponding diversity in the method of treatment. It hence becomes necessary to divide delivery, according to its different circumstances, into different classes; and, agreeably to the arrangement I have myself adopted, and which I find sufficiently accurate for the purpose of laying down practical rules of management, labours may be divided into the following five classes:— the natural, the preternatural, the flooding deliveries, those which

are laborious, and those which, though on the whole natural enough, are complicated with some extraordinary circumstances; the consideration of these forms of labour will constitute the second section of our subject.

You will generally find, after parturition has been accomplished, especially if the accoucheur have not been meddlesome, and more particularly among your country patients, that women require very little subsequent attention. Labour is a natural process, and the majority of them do perfectly well. Although, however, this is generally the case, yet we find sometimes in the dense populations of large towns more especially, that after parturition distressing or dangerous diseases are apt to occur; *puerperal fever*, for example, *mammary diseases*, or *derangement of the actions of the brain*, not to mention other puerperal affections which might be enumerated; and hence it becomes necessary that we should give our attention to the management of women after delivery has taken place: and this will constitute the third section of our subject.

When women are in a state of gestation, I need scarcely state to you, that the genitals are undergoing very considerable changes. The *ovarium* forms the *corpus luteum* hereafter mentioned. The *womb* itself undergoes more conspicuous changes, and the fœtus, the water, the placenta, and the membranes are all generated within its cavity, the sides thickening, and its capacity enlarging. In a word, when gestation occurs, the genitals undergo the most important changes, which give rise sometimes to disease in those parts, sometimes to disease in the system in general; and these will also occupy our attention, forming the fourth section of our subject, viz., the *gravid uterus*, as it is called.

The last division will comprise a part which we must not pass over in silence, though I find you are in general disposed to give it but a negligent attention, I mean the consideration of the genitals in the unimpregnated state, and of the diseases to which they are liable. Your inattention to this important section of our inquiries leads me to treat this subject in a somewhat cursory manner, though my considerate opinion is, that it forms one of the most valuable parts of midwifery, and with it the course will close.

BONES, LIGAMENTS, AND JOINTS OF THE PELVIS.

When the accoucheur gives his attention to the study of the pelvis, he soon discovers that there are two modes in which it may be advantageously examined. He may consider the different *bones*, *joints*, and *ligaments* of which it is formed, and he may examine also the *obstetric properties* which belong to the *bony case*, produced by the connexion of its different parts; in both which points of view I purpose, in the succeeding lectures, to bring the pelvis before you. We will, then, commence with the consider-

ation of the different bones of the pelvis, the joints and the ligaments of which it is composed, so far observe, and so far only, as the *properties* of those bones are interesting to the accoucheur, for into the general anatomy of the parts it is neither my design nor province to enter.

We find in the young child and fœtus the bones of the pelvis more numerous than in the adult, being at least eight in number; the *os ilium*, the *ischium*, the *pubes*, on either side, the *sacrum*, and the *os coccygis;* but in the adult, although nominally this division exists, it is in reality wanting, the bones of the pelvis being in number four only, namely, the two *ossa innominata*, or side bones; the *sacrum*, or that large bone which is fitted in behind; and, in connection with the end of the sacrum, the *os coccygis.*

OS COCCYGIS.

The os coccygis, a small triangular bone, is frequently mentioned by the practitioner of midwifery. It is connected with the lower extremity of the sacrum, and is liable to be pressed upon when the child's head is emerging, especially if the head be large or the pelvis small; and hence arises its obstetric interest. Though usually considered as consisting of one piece only, in reality we find that the os coccygis is made up of several — of two or three not unfrequently connected together by cartilage, so that the bone hence acquires a certain degree of *flexibility*, which may adapt it a little to the passage of the child. It has been asked sometimes why this bone, the os coccygis, has been given to the pelvis both in the male and female, or why it is connected with the sacrum by means of a moveable joint? In the female there is an obvious advantage derived from its mobility on the sacrum, for the bone, of consequence, receding when the child comes into the world, gives more room for its passage; but this cannot be the reason why this bone should be found in the male, though a pregnant male is not an impossible phenomenon. My own notion is, that the os coccygis may be properly recorded as a *tail-bone* of our species. We find, when we examine the history of animals, that there are certain organised parts which are not developed in certain genera, although in other genera they are. Of these parts you have examples in the muscles of the human *ears*, which look like a sort of vestige of the muscles to be found in connexion with those parts in animals. In the *nipple* of the male sex, a sort of vestige of that more perfect structure met with in the female, you have another example of the same kind of structure; not to mention the dartos and platysma myoides, the vestiges of the panniculus carnosus. Now I agree with those who think the os coccygis to be nothing more than a vestige — a vestige, in man, of that which we meet with in very many genera in a high degree of perfection.

SACRUM.

The next of the bones of the pelvis to which I shall request your obstetric attention, is that which is fitted into the back of the pelvis, a large triangular bone, called the sacrum, and presenting several points of study to the anatomist, though but few, however, to the accoucheur. When we examine the sacrum we find it to be a bone of considerable size, triangular in its shape, curved, the convexity of the bone posteriorly, the concavity in front, the latter being frequently mentioned by the accoucheur under the name of the hollow of the sacrum. On the upper edge (the basis of the triangle) there is a projection in the middle, and it is this projection which, in connexion with the body of the last lumbar vertebra, forms what the accoucheur mentions so frequently under the name of the *promontory of the sacrum.* Besides the form of the bone I wish you to notice the articulatory surfaces, those which unite it above with the last lumbar vertebra, that which connects it below with the os coccygis; and those lastly which unite it laterally with the ossa innominata.

OSSA INNOMINATA.

When turning our attention from the sacrum and coccyx, we again examine the pelvis, we find that the principal bulk of it is formed by two very large bones, the ossa innominata. These bones, of very large size and very irregular shape, possess, however, but few points requiring obstetric attention. In the adult, the os innominatum is made up of two pieces, the one forming the *body,* the other the *wing* of the bone; and those two pieces are connected, or consolidated to each other in such a manner as to form a salient angle or edge. In the young child and the fœtus we find that the bone is differently divided, consisting of three pieces, the *os ilium,* the *ischium,* and the *pubes.* That portion which lies above and in front — the os pubis; the portion below and sometimes behind — the ischium; and the remaining and larger portion — the ilium; this division, met with in the fœtus, is *nominally* preserved even in the adult. In the os innominatum on either side, you should notice this large *acetabulum,* which, in conjunction with the head of the femur, forms the *hip-joint.* The large *aperture,* — the *obturator foramen;* the *tuberosity* of the ischium, the part upon which we sit; the *spinous process* of the ischium, a pointed process of the bone projecting backwards and a little downwards; the *hollow* of the ilium; the *articulatory surfaces,* one in front, uniting the os innominatum on the one side with its fellow on the other; and the other posteriorly, severally connecting the bones with the sacrum. So much, then, with respect to the bones of the pelvis, the sacrum, the os coccygis, and the two ossa innominata.

VERNACULAR TERMS.

It may not be impertinent to give you the names by which they are known in our *maternal tongue*, because *female* practitioners, with whom you must occasionally meet, use them in preference to classical terms, ill suited to Teutonic organs; and, therefore, without the knowledge of the vernacular expressions, you might be at a loss to understand what is meant. The bone on which we sit, the ischium, they very properly call the *sitting bone;* the os pubis, the *shear bone;* the os ilium, the *haunch bone;* the sacrum, the *rump bone;* and the little bone, the os coccygis, they call the *huckle*, perhaps an euphonious and more graceful substitute for knuckle.

LIGAMENTS.

When the anatomist examines the pelvis, he finds there a variety of ligaments, some of them of no small importance in surgery, a delicious study for the amateurs in hernia. In an obstetric view, however, the ligaments which alone are of importance are the *obturatores*, and more especially the *sacro-ischiatic* ligaments, for with the ligaments of Poupart and Gimbernat the accoucheur has little to do; and first of the obturatores. In the ossa innominata we have, in either bone, a large aperture, through which two or three fingers may be passed — the *obturator foramen* already demonstrated; with a sheet of ligament (the obturator ligament) in the recent pelvis this aperture is closed; and although examining this ligament we often find it in several apertures made by the dermastes, or the more destructive fingers of noviciates, naturally there is one aperture only, placed above towards the back part, and transmitting the obturator artery, vein, and nerve — the vein not of so much importance, the artery of considerable interest, and the nerve frequently mentioned by the accoucheur, as the trunk of it is liable to be compressed and injured under the passage of the fœtal head.

The *sacro-ischiatic ligaments* are a set of ligaments lying on the sides of the pelvis, and somewhat behind. They are divided into two pairs; the one lying externally, the other within, and hence the appellation of the *external* and *internal.* The external sacro-ischiatic ligament, arising strong and narrow from the tuberosity of the ischium, passes outwards, backwards, and upwards, becoming very broad, to be inserted into the lower part of the sacrum and upper part of the os coccygis. The internal ligament arising narrow and strong from the ischial spine, passes upwards and backwards, to be inserted broadly into the lower part of the sacrum and the upper part of the os coccygis laterally, much in manner like the former.

JOINTS.

When resuming the pelvis, we examine it with a view to its articulations, we find they are several; and the hip, the lumbar, the sacro-iliac, the sacro-coccygeal joints, together with the *symphysis pubis*, may all claim our attention; but of these articulations the three last only are of obstetric importance.

SACRO-COCCYGEAL JOINT.

The sacro-coccygeal joint is a moveable joint, allowing the os coccygis to recede considerably, moving on the sacrum, so as to enlarge the outlet of the pelvis posteriorly to the extent of an inch. This joint, constituted in the same manner as the other joints of the body, has articulating surfaces, invested with cartilage, covered also with synovial membrane, the ends of the two bones being connected by capsular ligaments, which, rising all round from the extremity of the sacrum, is inserted all round into the extremity of the coccyx, and completes the articulation. It sometimes happens that this sacro-coccygeal joint is the subject of disease or accident, and hence its principal interest to the accoucheur. In obstetric works you will find mention made of *anchylosis* of the os coccygis, a disease under which, in consequence of an ossification of the joint, the sacrum and the os coccygis become consolidated with each other. This anchylosis of the sacro-coccygeal joint I conceive to be of very rare occurrence; and, I believe, it still more rarely happens that this anchylosis produces any *serious* obstruction to parturition; yet should it so happen that the coccyx were placed at right angles with the sacrum, and thus became anchylosed, encroaching on the capacity of the inferior aperture of the pelvis, it might certainly, if the child's head were large, considerably obstruct transmission. Such difficulties, perhaps, have now and then occurred. It more frequently happens that, instead of anchylosis, you have a *rigidity* of the part. A woman may be 40 years of age before she marries, and perhaps she has a child at 41; her health may have been vigorous, her flesh firm, her fibre rigid and unyielding, so that the sacro-coccygeal joint, the perineum, and all the parts, may be indisposed to give way. Now rigidity of the sacro-coccygeal joint, with rigidity of all the parts adjacent, is a very formidable obstruction to the passage of the fœtus, nor an unlikely occurrence in country practice; and where it does occur, unless properly managed, is not unfrequently destructive to both the mother and the child. Should it be my lot in practice to meet with a case allied to those I have been describing, a case in which, from anchylosis of the sacro-coccygeal articulation, or general rigidity, the birth of the head was obstructed, the following would be my practice. Laying it down as an axiom, never too often iterated, that a meddlesome midwifery is a bad midwifery; pro-

vided no dangers occurred, clearly requiring immediate delivery, I should, for four and twenty hours after the discharge of the waters, give a fair trial to the natural efforts. Should dangerous symptoms urge, or should the twenty-four hours pass before the delivery was accomplished, if the vulva were relaxed, and the obstruction arose from anchylosis, I should, with forceps, and by moderate efforts, co-operating with the uterine, endeavour to extract the child, frequently examining the pulse and the countenance, and bearing in my mind the fatal consequences of obstetric violence. The yielding of the anchylosis under moderate effort, would not, perhaps, be undesirable ; room might thus be obtained, and the child might now and then be saved. Should the forceps fail, or should the rigidity of the vulva preclude their use, if urging and dangerous symptoms demanded immediate delivery, I should then, though unwillingly, have recourse to that murderous instrument, the perforator; but if no dangers threatened, anxious not to cover my hands with the blood of an innocent infant, unless I believed the child to be dead, I should wait until the woman had been in strong labour for eight and forty hours after the discharge of the liquor amnii, then at length laying open the cranium, should it still not pass away.

It sometimes happens, that a *disruption* of the sacro-coccygeal joint occurs. The head perhaps is large, the pelvis is small, the pains are violent, and suddenly the head emerges from the pelvis ; when it does so, there being a very strong pressure on the coccyx, the joint may be torn asunder. With a case of disruption I never met myself, but cases where the sacro-coccygeal joint has been thus torn, are mentioned in Denman's work; it may be sometimes heard to give way. Should disruption occur, it may be soon detected. Put the fore-finger of the right hand into the rectum, pushing it up to the joint, and apply the thumb over the joint in apposition externally, when the chasm between the two bones may be easily ascertained. Such a case should be managed on the general principles of surgery, but let me add obstetrically, that, during the cure, you should so place your patient as not to throw the os coccygis directly forward in the front; for, from the preceding remarks, it seems desirable that the os coccygis should not unite rectangularly with the sacrum, but under the ordinary bearing, so as to form a part of the general curve.

Patients are sometimes affected with *inflammation* of this joint ; examples of which, both acute and chronic, I have myself seen. Wholly unconnected with pregnancy or parturition, inflammation may occur, and still more frequently may it be brought on in consequence of the passing of a large head, where there has been vehement straining, and the joint, though not torn, has been strained. If inflammation of the coccygeal joint occur, you will know it by the patient's complaining of pain there, and more especially by stating, that whatever moves this little bone behind, gives a sudden pang of uneasiness; in sitting, in rising, in turn-

ing round on her bed, pain may be produced. I remember, on visiting a patient in whom labour had been laborious, being surprised not a little to find her seated on the frame-work of a chair, from which the bottom had been removed. On asking her why she seated herself in a manner so extraordinary, I learnt, that unless she had recourse to this expedient, which you will perceive removed pressure from the coccyx, she was continually uneasy. Taking an intimation from this observation, I made an accurate examination of the joint, and then ascertained more especially by moving the coccyx on the sacrum, that the articulation with its ligaments was in a state of inflammation, and that the slightest disturbance occasioned pain.

TREATMENT.

Leeches, *clysters*, *cupping*, perhaps from the loins and sacrum; *diaphoretics*, *digitalis*, *low diet*, and *blood* from the arm, provided the inflammation runs high — these will constitute your principal remedies, and the joint should be still. It is remarkable, that where there has been this inflammation, like rheumatism, it seems afterwards to be affected by the weather, and more especially when there is an east wind, which is worth your recollection. Patients of this kind will complain of pains in that way for years afterwards, as I have had occasion to observe in the patient whose case I have related.

In *scrofulous* subjects, it sometimes happens that the sacro-coccygeal joint partakes not merely of an inflammatory, but of a suppurative action, and the parts may fall into a sort of *malignant* condition, so that the disease will not heal. In a case of this kind, should all other attempts fail, I may remark, by way of suggestion, that you might perhaps remove the os coccygis altogether, as this bone does not appear to be of any very great importance in the skeleton; afterwards, paring away the diseased extremity of the sacrum, till you reach the sounder parts more disposed to the healing process. The hint may be worth recollecting, but of temerity beware. And here perhaps I may take the liberty of observing, that malignant actions are sometimes confined to a few *films* of structure only, so that if you can but destroy those few films, you will at once come down upon a healthier organization, which will heal; whereas, if you left the case to itself, it would go on working to the patient's destruction. A chancre treated by lunar caustic is an illustration of this.

SYMPHYSIS PUBIS.

The next joint to which I shall request your attention, is the symphysis pubis, a joint of vast importance in midwifery. This joint unites the ossa innominata in front; — there is nothing peculiarly interesting in its structure. It is formed of the extremi-

ties of the ossa innominata, invested by cartilage, connected together by means of a fibrous substance, and more especially strengthened by a strong capsular ligament passing across it, arising all round from the extremity of one bone, and inserted all round into the extremity of the other. Upon this ligament the main strength of the joint depends; for if you were to take it away, the bones would have but little connexion. The ligamentous fibres are much more abundant on the outer than on the inner part; and there is wisdom in this; for a mass of ligament, internally, would have contracted the pelvis, where it is so frequently contracted, between the front and back of the brim, and would thus have presented a further obstruction to parturition. In a practical view, the thinness of the ligament on the back of the symphysis pubis is not without its interest. The joint, as you will hereafter understand, is sometimes filled with matter, and sometimes otherwise disorganized. Now, though externally these parts may, no doubt, be examined by the touch — a manual examination may be most successfully made within; and this, too, notwithstanding the urethra is lying along upon this part.

I shall now show you a preparation of the ossa innominata of a young child, divided into the ischium and pubes. Here is another preparation, which shows the division of the same parts into the ilium, ischium, and pubes, which I wish you to notice with particular care. Here is a preparation, showing the sacro-ischiatic ligaments very well; and as they are important in midwifery, I should wish you to notice them also with attention. Here is a preparation exhibiting the symphysis pubis: the preparation is formed in this way — taking a saw, and cutting from side to side, you separate the front from the back, obtaining thus the view I now present. You see the articulatory extremities of the bones, the cartilage and intervening substance; and behind, the ligamentous fibres all very plainly.

LECTURE II.

INFLAMMATION AND SUPPURATION OF THE SYMPHYSIS PUBIS.

It is not common for the symphysis pubis to be seized with acute inflammation; yet now and then spontaneously, or in consequence of some violence done to the joint, a sudden and smart attack of inflammation will occur there. When acute inflammation is attacking the symphysis pubis, severe pain is felt in the region of the articulation, heat of the surface, whiteness of the tongue, frequency and hardness of the pulse, and all the ordinary signs of inflammatory fever attend. In conjunction with these indications

of the disease, there is, too, one symptom very characteristic, and deserving, therefore, a particular notice — I mean the exacerbations of pain produced by all those causes which disturb the joint. Whether the patient be sitting, standing, or moving in her bed, sudden pains are occasionally felt at the symphysis, in consequence of the movement of the inflamed extremities of the bones upon each other — sometimes arising from the action of the muscles on the pelvis, and sometimes from the unequal alternate bearing of the trunk on the ossa innominata. By manual examination in dubious cases all doubt may be removed, and especially by examining internally. Pass your finger into the pelvis — the ligament on the back of the joint internally being very thin — place the tip of the finger on the inside of the symphysis, and you may readily find whether it be tender or not. By a tenderness, therefore, observed in pressing the parts — by a severe exacerbation of the pain arising from all those causes which throw the bones into motion — by pain and aching in the region of the joint, and severe inflammatory fever, the disease is characterised distinctly, and easily discriminated. Unhappily the symphysis, where it has this acute inflammation, is apt to become a subject of suppurative action, and this somewhat promptly too — perhaps in a few hours — certainly in a few days. Where matter is engendered between the extremities of the bones, and shut up in the ligamentous capsule like pus concealed beneath the *theca* of the finger, it may give rise to a vast deal of constitutional irritation. Shiverings frequently, and smallness of the pulse, general and alarming disturbance of the constitution occur, and the patient sinks perhaps before the matter is discharged; or where the symptoms are not so violent, and the constitution is stronger, the ligament, not without difficulty, however, may be opened by absorption, and in this manner the matter may get out, sometimes issuing posteriorly, or at the point of the pubes, and sometimes working its way along the front of the pelvis, so as to escape at the upper and inner part of the thigh. When matter collects between the bones, this may in general be very easy ascertained by the previous inflammatory symptoms already enumerated, by the constitutional irritation, by the throbbings, by the shiverings, so often observed where pus is encysted, and more especially by manual examination. For my own part, if I suspected suppuration, I should confide in this examination of the joint, as the principal means of detecting it; and in making this examination, although I should not neglect the other parts, remembering the thinness of the ligaments in the back of the symphysis, I should lay my finger on the inside of the joint, and make the most diligent investigation there; and if three or four drachms only of matter were collected in the capsule, it might, I conceive, in this manner be easily detected. As inflammation and suppuration of the symphysis pubis, in the acuter form, is a very dangerous disease, it ought to be treated with considerable activity in women of robust and vigorous constitutions. *Venesec-*

tion, purging, diaphoretics, and *digitalis,* in operative quantities, should be tried. *Leeches* and *fomentations* may be applied to the part. The more quiet the patient is kept, the less disturbance there will be of the inflamed structure; and if there is a good deal of pain after blood has been taken away from the arm, I would give *opium,* or other anodynes. If it so happen that your patient is not robust, but of a weaker constitution, you must treat the disease with a little more tenderness. Purgatives, diaphoretics, digitalis, leeches, fomentations, and so on, may all be proper as before ; blood too, it may be necessary to take from the arm ; but in those constitutions you will soon find out, when practising for yourselves, that *large venesection* is, in general, *not* well borne.

Were matter to form in the joint, I should be anxious, on account of irritation, to ascertain the existence of it as early as I could ; and if I found there was a great deal of disturbance attending, I should wish to lay open the joint as promptly as might be, to give the matter early vent. The crown of the arch of the pubes, care being taken not to wound the orifice of the urethra or the urethra itself: — or the back of the joint would be a part convenient enough for the introduction of the lancet.

OF CHRONIC INFLAMMATION AND DISORGANIZATION OF THE SYMPHYSIS PUBIS.

In women with *blue eyes, fair complexion, flaxen hair,* and *attenuated skin,* beautiful but scrofulous, we sometimes meet with another disease of the joint, viz., *chronic inflammation ;* in its nature very nearly allied to *white swelling* in the hips and knees. When the chronic imflammation of the symphysis pubis occurs, the patient is affected with pain there, as in the case of inflammation in the acuter form. There is a tenderness on pressure, there is uneasiness felt upon progressive motion, in standing, nay, even in sitting or lying ; for the reason already assigned exacerbations of pain are apt to occur ; some febrile action is present, not that severe fever which accompanies acute inflammation, but of a hectic nature, continuing for a few days or weeks; the disease may remit for days or weeks spontaneously, or, in consequence of the use of remedies, returning with increased violence and again remitting, and thus, sometimes exacerbating and sometimes less severe, it makes its progress with varying rapidity till it ultimately terminates either in resolution of the inflammatory action, or suppuration and disorganization of the joint. Suppuration occurring, the patient may die before the matter is discharged, or she may live until the matter make its way forth externally or internally, and until the ossa innominata are completely separated in front, a point easily detected by examination. When the woman survives the opening of the abscess, the parts being in a state of malignant disorganization, are indisposed to heal ; un-

healthy fluids are discharged, constitutional irritation continues, and the patient is carried off by the wasting and hectic.

There is in the present state of our information respecting this disease, but little hope of recovery when the joint is completely disorganized, and especially where there is a scrofulous taint in the constitution. That man will indeed be the benefactor of his species who shall discover the means of remedying the scrofulous defects of the habit. The *sea-air*, the *sea-side*, and *bathing* in the open sea, are recommended as calculated to improve the scrofulous habit, and I believe they have their advantages. If your patient is gaining ground, this would be a very proper occasion on which to send her to the sea-shore. Iodine will do no harm.

A principal object which you ought to bear in mind, and which will serve as an indication to direct your plans of local treatment, especially consists in the *prevention* of suppurative action, by keeping the inflammation under that level which may give rise to the formation of matter; and with this view it was that Dr. Haighton was accustomed strongly to recommend the repeated application of leeches, six or eight, for example, two or three times a week for weeks together. Women bear the loss of blood in a manner truly surprising, and which, independent of previous observation, might scarcely have been believed. A woman *miscarries* sixteen or eighteen times in the course of three or four years, and on all these occasions has considerable discharges of blood, the constitution being shaken indeed by these discharges but not completely broken up. When patients labour under prolapsus of the inner membranes of the rectum, it is surprising what losses of blood they will sometimes bear, without becoming the subject of a fatal cachexia. Now this fact being established, in inflammation of the pubes we may, I think, venture from time to time to take away moderate quantities of blood for weeks in succession, where good is derived from it; nor where the inflammation is restrained ought we to be deterred from the application of leeches, merely because the patient complains of weakness. To avoid debility is indeed important, but not so important as to subdue the inflammation, and if we have no antiphlogistic means preferable to leeches, the application of them should not be rashly laid aside. *Blisters*, *issues*, and *setons*, together with other ordinary remedies, are not to be forgotten. Mr. Park, a surgeon of Liverpool, succeeded in removing, in a sailor, the knee joint from the leg, the patient ultimately recovering. Mr. Oxley, a gentleman formerly of this class, informed me, that in cases of diseased elbow, he had seen his preceptor, Mr. Hey of Leeds, perform the following operation: — He made an incision over the joint large enough to allow the introduction of the tips of two or three fingers, and then taking a sort of chisel, by means of this instrument chipped away the diseased structure. "In three or four cases," said Mr. Oxley, "I have seen this operation performed, and, with one exception, the patients all did well."

Where there is a disorganization of the symphysis pubis, and it is very obvious that the patient must die exhausted, unless something extraordinary be done, it would perhaps be worth while to remove the extremities of the bones; and if the disease were not spread so far as to require a very large removal, there would be a reasonable hope of success. I do not, however, by any means intend to recommend this operation to your rash adoption, though I think it may deserve a cautious consideration in a case otherwise desperate.

RELAXATION OF THE SYMPHYSIS PUBIS.

We sometimes find the symphysis pubis affected with another disease, not always clearly discriminated by practitioners. I mean the *relaxation of the symphysis pubis*, of which I myself have seen examples in three or four different instances. Where relaxation of the symphysis pubis takes place, it may, now and then, occur independently of gestation, but in all the cases I have seen, this disease has been connected with pregnancy, and it is generally in the latter months of gestation that it manifests itself. At first the patient feels a little uneasy about the symphysis; this uneasiness increases till there is a feeling of weakness in the front of the pelvis, and perhaps when the patient is walking in the street, she has a sudden pain which obliges her to stop; or if she is lying in bed, even upon turning herself, she feels a sudden and severe pain, arising it may be from the stretching of the ligaments. The disease increasing, its character becomes more marked; there is then a feeling as if the pelvis would fall to pieces. The woman walks, perhaps, but with great difficulty, feeling much uneasiness in the joint; by and by she makes use of crutches, then she lies on the sofa, ultimately she keeps her bed; and if you ask her to leave her crutch and stand up, on trying to stand she immediately sinks, as if she were intentionally sitting down. If you lay your hands on her hips and firmly press the bones so as to support the two ossa innominata, she will stand with less difficulty; if you move your hand, she immediately sinks upon the bed. When parturition supervenes, the disease becomes obvious enough; the woman tells you her bones are in motion; I have even heard them move, and if you examine them with ordinary care the motion may be distinctly felt. After parturition, in a few weeks it may be, the joint occasionally recovers, but frequently the relaxation continues for months, or for years, being apt to recur in an increased degree with each succeeding gestation.

Here, then, are the leading characters of this disease; a feeling as if the pelvis would fall asunder; a sensation as if the bones were in motion; an incapability of standing, unless the pelvis be supported; and such motion and displacement of the bone in front as may be distinctly felt on a careful examination. Obscure cases may be detected with difficulty, but by these few characters where

your vigilance is alive, I think you may easily enough know the disease, provided it be completely developed. Varieties of this disease occur, but I content myself with its general history. For the relaxation of the symphysis pubis, we are not in possession of a very effectual cure, as indeed you may infer from my asserting that this is a disease which sometimes continues for months, and even for years together. *Bark*, *bitters*, *tonics*, and *alterative* medicines are proper for administration, as they tend to brace and strengthen. The country, the sea-shore, the sea-bath, and sea-bathing are recommended, especially when the patient is improving. Denman states, that he found advantage in some cases principally from the *plunging of the hips* into very *cold water*, and this I also recommend.

A *palliative* for the disease, and a very valuable palliative, is a well-contrived *bandage* made of some unyielding texture, of jean, for instance, applied in such a manner as thoroughly to embrace the hips, and formed with straps and buckles, or with a lace, so that it may be tightened or slackened at pleasure. From our hunting belts a hint may be taken for the construction of this bandage; it is made precisely on the same principle, and in cases of slighter relaxation, answers the purpose very well. I find, however, that patients sometimes lose the advantage of the bandage from their want of perseverance. Not habituated to be confined in this part of the body, they become impatient, lay the bandage aside in two or three days, and tell us they would rather suffer from the disease than the use of the belt. Nevertheless, where properly applied, it is a very valuable palliative, and the patient, if she ultimately persevere in using it, will find it to do her effective service. If women could wear those stays, the vogue of the good old times, and which came down upon the pelvis, and actually incurvated the very bones, as my own preparations show, I do not see why, with the help of habit, they may not be able to wear the bandage which I am here proposing.

In cases where bone has been *broken*, and the parts become reunited by cartilage, instead of being consolidated in the ordinary way by *callus*, Mr. Amesbury has contrived an *apparatus* to gain an osseous reunion of the parts. The general effect of this apparatus is to keep the extremities of the bones bearing upon each other, and perhaps I may say to press a little, or at all events to *irritate* this cartilaginous union. The result of this irritation is to give rise to some degree of inflammatory action, not to be carried beyond a certain point; and the result of this inflammatory action is the deposit of earthy matter. By this beautiful application of a physiological principle, Mr. Amesbury has obtained a consolidation of the broken bone, where the seton itself had failed. It might be worth consideration, whether something of the same kind could not be suggested with respect to the symphysis pubis. It is true, indeed, the relaxed symphysis pubis, unlike the cartilaginous joint of fractured bones, is not naturally

prone to ossification, nevertheless it may be worth trial, whether by the use of the bandage drawn very tightly, such irritation may not be occasioned as may give rise to anchylosis, or at least to a constriction of the joint. I have sometimes thought there is another remedy which might be tried, where a woman has been laid up for many years a complete cripple. It is well known that the symphysis pubis may be divided by the knife, without necessary and urgent danger. Frequently, on the Continent, this has been done, though for another purpose, that of enlarging the pelvis at the time of delivery. In the case I am now putting, where the patient is a cripple, and where she has been laid up for many years, might not a cure be effected by passing the knife through between the bones, and afterwards, by means of a proper bandage, keeping the extremities of the ossa pubis in firm contact with each other? It is certainly a rough remedy, and as the disease is not dangerous, women might perhaps be averse to submit to it under any circumstances; but as benefit might perhaps attend its administration, I have thought proper to mention it.

SACRO-ILIAC SYNCHONDROSIS.

The next joint to which I shall request your attention, is the sacro-iliac synchondrosis, a joint which is uniting the sacrum with the ilium on either side of the pelvis. In its structure, the sacro-iliac synchondrosis behind, very considerably resembles the symphysis pubis; it is formed by surfaces of the os ilium and sacrum, invested with cartilage, connected by a somewhat soft substance, and braced together by means of a large number of ligamentous fibres, inserted into the sacrum and ilium, and lying both in the front and back of these bones. When speaking of the symphysis pubis, I said there are more ligamentous fibres externally than within, a remark which holds true here. It is principally at the back and outside of the pelvis that these fibres are accumulated, and wisely, for if there were a large mass of ligament internally, it might impede the passage of the child. These fibres are divided into two sets, the external, and those which lie within, called the external and internal, sometimes the anterior and posterior pair of ligaments.

The diseases of the sacro-iliac synchondrosis are not of the same interest as those of the symphysis pubis; and I am the more gratified at this, because it enables me to simplify my remarks upon them. *Inflammation* of this joint may now and then occur; the joint is large, and a great deal of pain might attend. With sciatica, the disease would most probably be confounded, nor perhaps is the distinction of real importance. It would be too much to say, that *suppuration* of the sacro-iliac synchondrosis never takes place; such cases, however, are unfrequent, and have not fallen under my notice. *Relaxation* of the joint is of more common occurrence, and a case of this kind you will find in

Sir Charles Mansfield Clarke's work on the diseases of women. Among other symptoms, the patient had a good deal of pain in the back and an incapability of standing for half a minute, unless supported on each side. When she attempted to stand up, she placed her hands on the sides of her hips; this led her surgeon to make a firm pressure there with his own hands, and as long as these were firmly applied, she could stand, but as soon as the support was withdrawn, she was in danger of falling. Now symptoms like these will enable you with facility to detect the disease in most instances, provided you recollect that women are liable to this affection, and are on the watch for its occurrence. In the case related by Sir C. Clarke, *time*, which cures so many evils, was found to be the remedy. Palliation was derived from the use of a well-adjusted bandage; indeed I should expect more benefit from a bandage in this case, than in the relaxation of the symphysis pubis, because the articulatory surfaces are broader, and consequently admit of being more readily brought to bear against each other.

RELAXATION OF THE JOINTS OF THE PELVIS.

In many of the *mammiferous* animals, when delivery is about to take place, a considerable relaxation of the joints of the pelvis occurs, leaving the bones in a great measure separated from each other. Mr. Mangles informed me, that in dissecting a *mole* which had recently brought forth its young, he found the ossa innominata in front distinctly separated from each other, to the extent of three or four lines, the pubes being connected by means of muscular fibres, the action of which would have the effect of mutually approximating these bones. When the *cow* is about to bring forth her calf, there is a relaxation of the symphysis pubis, and of the *sacro-sciatic* ligaments, and such a yielding of the sacro-iliac synchondrosis occurs on either side, that a day or two before parturition the sacrum of the animal falls inwards, and a considerable chasm in the back is produced, and regarded as a token of approaching delivery.

Now a question arises, whether, as a relaxation of the ligaments and joints occurs in many of the mammiferous animals, this relaxation may not also take place in the human female? Ruysch states that he frequently observed it. Harvey speaks of it as a common occurrence, and he, though a physician, was a master in anatomy. In the year 1815, when a great number of women unfortunately became victims to that awful disease *childbed fever* — the death of so many young mothers, several puerperal bodies were brought to the dissecting-room, when I took occasion to inquire into that point, and found in one pelvis carefully examined, that some little relaxation of the ligaments certainly existed. The woman appeared to have sunk some three or four days after parturition. When I laid hold of the ossa innominata and sacrum, I found I

could readily move them, the one upon the other. On putting my finger behind the symphysis pubis on the ligament, I found that I could press it a little way into the joint between the bones, the ligament yielding to compression. When I attempted to move a little the innominata in front, the articulation offered but a slight resistance. On another pelvis *not* puerperal, and to appearance equally advanced in putrefaction, comparative observations were made, but in it the joints were not equally unbraced. In making this examination of the pelvis, therefore, I observed some relaxation of the ligaments, but I did not observe what had been asserted by the older anatomists, a decided separation of the bones from each other. Nor indeed did I expect to find this, for how then could women walk immediately after delivery? On the whole, my opinion with respect to the relaxation of the ligaments of the pelvis is, that in many other genera of the *mammalia*, it occurs in a much higher degree than in women, but that even in them some slight relaxation is taking place. Now this relaxation enables us to explain what we before stated as a fact, without entering into the reason of it, namely, why women are liable to marked relaxation of the joints before mentioned, solely or generally in connexion with gestation. It also enables us to explain why the symphysis pubis is sometimes burst open where the child has been unusually large.

BONY CASE FORMED BY THE PELVIS.

If you enter a museum which is well stored with pelves, you soon find on examining them, that there are perhaps no two precisely alike. Some are large, some small, some contracted, some distorted; some contain little osseous matter, and some abundantly; much and variously the pelves are diversified. The accoucheur, however, ought not to bewilder himself, as a minute anatomist might do, with the consideration of all the various forms, because many of them are of small importance in obstetric practice. For him, I conceive, it is sufficient to become acquainted with the following varieties, the knowledge of which is essential to the scientific exercise of his profession; I mean the large and small, the slightly and highly-contracted pelvis, and the pelvis of standard dimensions; — five varieties.

STANDARD PELVIS.

By a standard pelvis I mean that form of pelvis which the most generally occurs in practice; and which, notwithstanding some small and unimportant variations, is always met with where the skeleton is well formed. When I make my observations on the pelvis of standard make, I soon perceive that this pelvis is naturally divided into two parts, the *superior* and the *inferior*, the *brim* of the pelvis, as it is called, forming the line of demarcation

between the two. So much of this pelvis as is lying above the brim is denominated the *false* pelvis; and the appellation of *true* is assigned to that part which lies below. The false pelvis is not to the accoucheur of much importance, yet one or two observations upon it may not be out of place. This part of the pelvis is remarkable for the large chasm you observe anteriorly. In the front, therefore, it lies wide open, being closed up laterally and behind by the wings of the innominata and the vertebræ of the loins. Of no small importance is this piece of information, when you are making nice examinations of the *pelvic viscera*, the *bladder*, the *womb*, the *ovaries*, and so on — not to mention here the *kidneys* and *intestines*. If the accoucheur be asked to examine and ascertain the state of those parts with nicety, let him recollect, that there is a large chasm in the front of the pelvis, and that this chasm allows the hand to be fairly introduced into it. Sometimes we may actually feel distinctly the promontory of the sacrum, and if this can be done, surely any intervening enlargement, hardness, or tenderness, of the uterus, kidney, or omentum, may be easily made out. In making this examination, the woman should be recumbent, with the knees and shoulders elevated, and the abdominal muscles thoroughly relaxed. Unpractised as you at present are in midwifery, these niceties may appear to some to be of small importance — *parvæ leves capiunt animos;* but give me leave to tell you, it is the knowledge of these little niceties that makes the difference between an awkward and an able examiner; in other words, it is this knowledge which distinguishes the man who can make out what are the diseases of the pelvis, from the man who cannot.

LECTURE III.

STANDARD PELVIS.

The standard pelvis is divided by accoucheurs into two regions, the one lying below, the other above the brim; the former being denominated the *false* pelvis, the latter the *true*. As the true pelvis, or that part of it which is lying below the brim, is of very great importance in the practice of midwifery, with a view to a necessary examination of it, it has been distinguished into three parts, the *brim*, the *outlet*, and the *intermediate cavity*. The superior aperture of the pelvis, into which the child descends, is denominated the brim; the inferior aperture, at which the child comes forth into the world, is called the outlet, and the space between the two has received the name of cavity of the pelvis. If you examine a large collection of pelves, you will probably soon discover that there are no two brims that are formed exactly alike;

there are some which are larger and some which are smaller; some which are more round, some which are more oval; but in general you will find that the brim tends to an oval form; the long measure of which is lying from side to side, and the short measure, or diameter, from before backward, the regularity of the oval being broken behind by the projection already mentioned, I mean the promontory of the sacrum. The measure of these diameters, the larger and shorter, is found in different pelves to vary. An average may be four inches for the short diameter, five inches for the long diameter, reaching from side to side, and five and one-eighth or five and one-fourth for the oblique diameter, which is stretching in a well-formed pelvis from the back of the acetabulum to the *sacro-iliac synchondrosis.* These are the principal niceties in the anatomy of the brim. The brim varies in its make; being in some round, in others more oval; in some small, in others large; but in general, when the pelvis is standard, it is of an elliptical form, the regularity of the oval being broken by the promontory of the sacrum. Of this oval the long measure is from side to side, the short from before backward; the average width between the sacrum and the pubis about four inches; the average dimension from side to side about five inches; the oblique, or that which is stretching between the acetabula and the *sacro-iliac synchondrosis*, about five and one-eighth, or five and one-fourth.

When a labour begins in an ordinary way, the vertex of the child presenting, that is, lying over the centre of the pelvis, we find in the commencement of the process, that the face is lying to one side of the pelvis and the occiput to the other side, and thus, the long length of the head and the long length of the oval brim of the pelvis corresponding mutually, the head very readily descends. Sometimes indeed it happens, that the head of the child is placed in a labour with the face not laterally but in front, and then the long length of the head is opposed to the short length of the superior aperture or brim, and consequently if the pelvis be small and the fœtus large, it cannot be transmitted. I have myself unfortunately been compelled to open the head of a child because it lay in this way, and even where there is a large pelvis and a small head, it passes with difficulty in this position.

It sometimes happens that children come away feet first, under what may be called the crural presentation, nor is this delivery on the whole uncommon. Now when a child descends in this manner, if the softer parts are very relaxed, the pelvis very capacious, and the child not very large, it descends easily enough; and whether you are acquainted with the make of the pelvis or not, probably you will find little difficulty in accomplishing the delivery. But it sometimes also happens, that a pelvis is very small, or the child very large, and then a great deal of care may be necessary to get the fœtus away, more especially where you are abstracting the head. Now I have said the long measure of the brim is from side to side, and the short measure from before backward, therefore the

face ought to lie on the side of the pelvis, that the long and short measure of the head and brim may correspond. If I do not attend to this, in dragging the head downwards with the face over the pubis in the manner I now show you, I may go on pulling until I separate the head from the body, and then I have an unfortunate case, — and thus is midwifery with some people a sort of obstetric dray horse. They pull straightforward, and without considering come what may, marvel when accidents occur. Now in this case the whole difficulty arises not from misfortune, but mismanagement, either from not knowing what is the form of the brim of the pelvis, or, what is the same thing, knowing it and not acting on that knowledge; — I repeat that it is necessary, not only to be acquainted with the principles of midwifery, but to carry this knowledge to the bed-side of the patient, and to make it operate there in your practice. Now instead of pulling violently in this case, if I only turn the face of the child to the one side of the pelvis, so as to make the long length of the head to correspond with the long length of the pelvis, the head passes forth with the greatest facility; — it is therefore by adroitness and dexterity, and not by main strength, that the difficulty is to be overcome. It sometimes is necessary to carry your hand up into the pelvis, an operation never to be done if it can by possibility be avoided. Remember that in carrying your hand into the *uterus*, you may bruise, you may tear, you may kill; but still occasionally you are compelled, by inexorable necessity, reluctantly to do that which is always dangerous, particularly if you have a large hand. More especially you may have to perform this operation for the purpose of turning the child, by drawing the feet down over the brim of the pelvis. Now even in performing this simple operation, you may avail yourselves of the knowledge of those anatomical properties of the brim which we have just been contemplating, for if you wish to enter easily into the cavity of the uterus, when near the brim of the pelvis, you ought to lay your hand in the side of the aperture, because there we find most room. These points may seem to be of little importance, but it is an operative knowledge of those little circumstances which makes all the difference between a dexterous and an embarrassed operator; in other words, between one who is fit to practice the manual part of midwifery and one who is not. So much, then, respecting the brim of the pelvis, of oval form, the long length from side to side, the short length from before backward, the regularity of the oval broken by the promontory of the sacrum — points of anatomy of great importance in the practice of our art.

INFERIOR APERTURE.

When I take the bony pelvis, and make my observation on its outlet or inferior aperture, I find that this aperture is of a very irregular form, consisting of three large scallops, one upon either side,

and one in front of vast obstetric interest, known under the name of the *arch of the pubes;* but if I take a pelvis, with which the ligaments are still in connexion, I then find that this aperture of nameless irregularity, assumes a more familiar shape, tending somewhat towards a quadrangular figure. Now this is the form of the aperture in the living woman, with the bones of which the sacro-sciatic ligaments and various softer parts are connected. When I examine again this quadrangular or square aperture, I find that, like the brim of the pelvis, it has its two measures, the one from side to side, which may average about four inches, though varying, and the other stretching from the arch of the pubes to the front of the os coccygis, which may, though it likewise vary, average about four inches also. It seems, therefore, that there are two striking differences between the inferior and superior apertures of the pelvis; the superior being oval, the inferior more square; the two measures of the inferior being of equal length (four inches), whilst the measures of the superior are unequal. But I must now remark, that the os coccygis is made up of two or three pieces of bone, the pieces being connected to each other by cartilage, so that it acquires a certain degree of flexibility; and, moreover, that this bone is put into connexion with the sacrum, by the sacro-coccygeal joint, which allows a retreat of one inch. In consequence of the retreat of the os coccygis and the flexibility of the bones, we find that the outlet behind admits, under pressure, of being elongated about an inch; so that, when the os coccygis is thrown out, as in difficult labours it will be, there are, in fact, two diameters, the one lying about five inches from before backward, the other about four inches, and stretching between the sides. There is this important obstetric difference between the brim and the outlet: at the brim the long measure is from side to side, and the short from before backward; whereas at the outlet, the long measure is from before backward, and the short from side to side; accordingly we find in ordinary labour, when entering the superior aperture, the child's head comes into the pelvis, with the face on the one side, and the occiput to the other, but that at the outlet before it emerges, its position changing, the face gets into the *hollow* of the sacrum, and the occiput under the arch of the pubis, the *sagittal* suture resting on the *perineum.* In this way the long length of the head corresponds with the long length of the outlet, and so the child passes more easily into the world.

If you are bringing the child's head from the pelvis under a foot presentation, this nicety of anatomy must not be forgotten. Should you pull down the child, the face lying to the one side of the pelvis and the occiput to the other, if the head be small, and the pelvis large, the fœtus will come away notwithstanding; but if the pelvis is small and the head large, the face and the occiput lying in the way, you may go on pulling till you separate the body from the head. Dr. Lowder was requested to attend in a case of great difficulty, and found on making his examination that the head

was nearly severed from the body; a piece of information which a midwife, his predecessor, seemed loath to communicate, imagining, perhaps, that he would complete the operation she had begun, and take the whole credit of it to himself. On further investigation, he observed also, that the head was lying at the outlet of the pelvis, with the face towards one side, and the occiput towards the other, the long measure of the head lying against the short measure of the outlet. Directed, therefore, by those oracular whispers, he cautiously put the face of the child into the hollow of the sacrum, and without further difficulty, to the great surprise of the parties, the head was abstracted. Thus it may happen in a foot case, if you have a large head and a small pelvis, and forget to put the head into the proper situation, you may do the woman a great injury, and actually pull the head of the child from the body, while, by knowing and acting on this small point of anatomy, the whole difficulty may be surmounted, or rather set aside.

We are obliged sometimes to carry the hand into the pelvis for other purposes, or in order to turn the child. Now the operative knowledge of the flexibility of the coccyx may be of advantage even in performing this simple operation. If the hand in entering the pelvis bear too much anteriorly, or to the one or other side, it cannot be easily introduced; but bearing it backwards on the perineum and the yielding coccyx, care being taken not to lacerate or strain the parts, we may often introduce it with comparative facility. The outlet of the pelvis though somewhat quadrangular in its form, has, like the brim, a long and short diameter; but there is this important difference between the two, at the brim the long axis lies from side to side, at the outlet from before backward, so that the two measures are placed at right angles with each other.

CAVITY OF THE PELVIS.

In the cavity of the pelvis, one of the first points of obstetric anatomy is the *incurvation* of the *sacrum*, and consequent formation of the *hollow of the sacrum*. In some women the sacrum is straighter, and there the hollow becomes smaller; in others it is much more incurvated, and there you will find the hollow greater. This hollow makes more room for the child's head, or breech, or whatever part may be descending. When the vertex presents, the face lies there: when the face, the occiput lies there; nay, even in breech presentations, the delivery is facilitated by the lodgement of a part of the buttock in the cavity of the sacrum. Of this knowledge we may avail ourselves in practice, when assisting in a foot case; for example, when the head is in the cavity, you might throw the face forward and the occiput backward, thereby occasioning difficulty; for the parts do not fit well together;—the rule, therefore, is to place the face and forehead backward, and the occiput in front. Suppose a child is coming away vertex first, and that you are obliged, though unwillingly, to have recourse

to the forceps; on abstracting by this instrument, you might throw the occiput forward, and the face backward; but as the face does not fit well under this position, availing yourselves of the benefit of your anatomical knowledge, you may throw the face backward, and the occiput forward, when the head will readily come forth. When we examine the cavity of the pelvis further, we find it is of a very *unequal depth.* In front it is shallow, not above an inch and a half in depth; behind it is deeper, about four times as deep as in front; laterally, the depth is intermediate; so that if you examine the pelvis all round, you find its depth various; shallow in front, deeper behind, intermediate laterally; and therefore it is, in an ordinary labour, that when a child's head has got down into the pelvis, although behind and laterally it be still incarcerated among the bones, that so much difficulty may be experienced in completing its expulsion; yet, in front, it lies bare and open to the finger; and this I mention, because those who are commencing the practice of midwifery sometimes imagine, upon feeling the head in front of the pelvis, that the fœtus is just upon the point of emerging, whereas it may be embarrassed by the bones enclosing it laterally and posteriorly, and parturition may be protracted for hours. The shallowness of the pelvis in front is not to be forgotten, when you are making examinations; if you wish to examine well — for I look upon this operation as of the first importance to an accomplished accoucheur — if you wish to examine well, you may learn to carry your fingers very far into the pelvis, and this cannot be done if you lay them on the sides or back where the pelvis is deeper; it is only in front of the pelvis where the bones are shallower, that the tips of the fingers can be insinuated considerably beyond the brim.

ARCH OF THE PUBES.

There is yet a third point of obstetric anatomy, and that is the large scallop in front, frequently mentioned under the name of the arch of the pubes. This arch is obviously important; because, in ordinary labour, when the head is at the outlet of the pelvis, this arch facilitates the passage, by allowing the occiput to lie forth in front, and thus making room within. Or again, suppose the child presents by the face; that is, that the face comes away as the first part; as the labour advances, the chin gets out under the arch of the pubes; and the vertex lying in the hollow of the sacrum, there is room afforded in front to facilitate the delivery. It is at the point of the arch of the pubes that you will always find the *orifice* of the *urethra*, when you want to introduce the *catheter.* The readiest mode of doing this, is to place the woman on her left side, putting your finger on the point of the arch of the pubes, you will easily ascertain the orifice. The standard arch is of large span, wider in some women, in others more contracted; some little difficulty may arise, as the chin or occiput cannot lie forth as far as

ordinary. Observe a specimen of a very contracted arch, and another specimen of a capacious one, and the effect produced by either on the passage of the head.

INCURVATION OF THE PELVIS.

There is one other property of the cavity of the pelvis, which I have reserved for the last, although I look upon it as the most important of all — that is, the incurvation of it; for instead of the tube or tunnel which it forms being straight, it is curved in the same manner as if (being formed of some yielding material, such as tempered wax, for instance) its front were placed on my bent knee, and the upper and under parts of it were drawn towards my body. In consequence of the pelvis being thus incurvated, a straight line will not pass through the *axis*, or, in other words, through the *centre* of this cavity; it must be a curved line of course, as the pelvis itself is curved, a point which I will endeavour to illustrate: here is a pelvis, from which I remove the lateral half, with a view of showing you the cavity, and its incurvation, and here you will see that, upon placing a straight line (this wire) in the axis of the upper half, the straight line will not keep the axis throughout the cavity below; it is in the centre above, but it is not so below. And conversely you may observe, that if it be placed on the axis of the lower half of the pelvis, it gets completely away from the centre of the cavity above — therefore, in order to keep the axis throughout the cavity, the line must be incurvated, the convexity lying towards the sacrum, and the concavity towards the pubes. And observe, the curve of the axis corresponds pretty exactly with the curve of the sacrum; the two, as this demonstration shows, being nearly, if not wholly, parallel with each other. Now, on this account, (and this is the great practical observation to be made upon it,) as the cavity of the pelvis is curved in a manner demonstrated, the course of its axis or central line at the brim lies downward and backward, so that a straight line will pass downward through the axis of the upper portion of the pelvis to the point of the sacrum or the parts lying near it; and further, in consequence of this curve, as the course of the central line at the outlet is downward and forward as before explained, a straight line, placed in the axis of the inferior half of the pelvis, will, at its upper extremity, bear upon the promontory of the sacrum. How very important and very easy it is to recollect this, namely, that the axis of the brim passes downward and backward, and that the axis of the outlet passes downward and forward. In ordinary labours, the head follows the axis of the brim in the commencement, when traversing the brim passing downward and backward, and in the same way passing downward and forward when it emerges through the outlet. If you have a foot case, and there chance to be a large head and a small pelvis, you will find the knowledge of the axis to be of importance. If, in abstracting the head, I were

to draw downward and forward through the brim instead of bearing downwards and backwards towards the point of the sacrum, pulling the head towards the symphysis pubis, I might draw till I drew the child's head from its body without getting it away. To bring the head through the brim, I must draw a line leading from the centre of the superior aperture to the point of the sacrum, when it will be transmitted with comparative facility. I have myself known a child's head torn from its trunk, from the practitioner not being aware of this. The same thing is not to be forgotten when the head is the outlet, though attention to these niceties is of minor importance, as the difficulties are smaller. When you get the head to the outlet, you ought to draw downward and forward, (the axis of the outlet lying in this direction,) when the head will pass readily enough ; by neglecting this, you may create a difficulty which it is easy to avoid. Even in bringing the fœtal body through the pelvis, the course of the axis must not be forgotten, and this more especially if the pelvis be contracted, and the body form a larger mass than ordinary.

Remember, then, that the cavity of the pelvis is not straight, but incurvated ; that the curve corresponds with the bending of the sacrum ; that the incurvation is such, that at the brim the course of the axis is downward and backward, toward the lower extremity of the sacrum ; that at the outlet its course is downward and forward, so that a straight line passed upwards would impinge against the promontory of the sacrum, and that by a sort of semicircular movement the head and other parts are transmitted.

DISTORTED PELVIS.

It is not often that we meet with *distortions* and *contractions* of the pelvis in the *higher degrees*, yet now and then those cases do occur, and when they occur give rise to most formidable difficulties and dangers, the notice of which is well deserving our closest attention. When a pelvis thus becomes distorted in consequence of *fracture*, *rickets*, or above all, which is the most frequent cause, from *mollities ossium*, or softening of the bones, we find in general that all parts of it are more or less altered in shape ; the false and the true pelvis, the brim, the cavity, the outlet — are all incurvated and distorted together, yet it does sometimes happen, where there are distortion and contraction of the pelvis, that these are confined principally to certain parts of the pelvis only, a fact of some importance. Here, for example, is a pelvis which, if compared with a standard, seems much distorted at the brim, yet if you examine it at the outlet you will find that it deviates there but little from the natural form and capacity. Where there are distortions of the pelvis, too, you will not unfrequently find, upon examining specimens in museums, that one side of the pelvis is much more contracted and distorted than the other.

Should you meet with cases of distorted pelvis, (and in prac-

tising in large towns, such as Liverpool, Manchester, Leeds, Glasgow, and this Metropolis, cases of this kind will occasionally occur,) you must carefully examine with your fingers what part of the pelvis is the most contracted, and what part the most roomy, in order that you may direct your operations accordingly. These distortions of the pelvis occurring, of course there is no end to the different varieties of forms that the bones may assume; nevertheless I have observed, on making an examination of my specimens, that there are *two* leading shapes, or forms, to which these varieties may be reduced, and which may not inaptly be denominated the *angular* and the *elliptical.*

At the brim we sometimes meet with elliptical distortions, produced by the approximation of the promontory of the sacrum towards the symphysis pubis, the length of the brim becoming increased somewhat between the sides, and between the front and back abbreviated. At the outlet also the ellipsoid contraction may occur, the symphysis pubis being approximated to the lower extremity of the sacrum and the coccyx, so as to obstruct or to render impracticable the passage of the fœtus, even after its bulk has been reduced by the perforator.

The second variety of distortion, or the angular, is produced at the brim in consequence of the acetabula and the promontory of the sacrum being all of them pushed inward upon the axis of the pelvis. I once possessed a cast, which some rude hand demolished, in which the acetabula and promontory were so nearly approximated, that the brim was, as it were, divided into three fissures, two laterally and one in front. At the outlet also the angular distortion occurs, and here it is occasioned by the approach of the tuberosities of the ischia and the incurvation of advance of the sacrum and coccyx, and gives rise, as at the brim, to a formidable contraction of the passage.

What is to be done with women labouring under these distortions and contractions, whether of the elliptical or angular kind? If such a female is pregnant, and in the end of her gestation, there are but two modes in which the delivery can be accomplished: the one is by *laying open* the child and reducing its bulk, the other is by performing the *Cæsarean operation*, in other words, by making an opening through the abdominal covering and uterus, by introducing the hand at the apertures and extracting the child by the operation of turning, as it is called. If the fœtus is to be abstracted in these cases by the natural passage, the head must be perforated, the contents must be removed, nay, sometimes the thorax and abdomen itself must be laid open, and when in this manner the bulk of the fœtus is reduced, and the parts are softened by putrefaction, it may at length be got away. Under circumstances of this kind, then, it becomes a question whether you should perform the Cæsarean operation, or the operation of *embryotomy.* Dr. Hall and Dr. Burns, who have written on midwifery, have ascertained that when the standard head is reduced in the

best possible way, to the smallest size, by the most expert operator, it will require for its transmission an aperture three inches in length, and in breadth one inch and three-quarters; therefore, if you find, upon examining, that no part of the pelvis is so capacious as this, it follows that the Cæsarean operation must be performed, and perforation is unjustifiable. After all, however, the mere capacity of the aperture will not enable us to decide, for not to mention the difficulty of ascertaining it with precision, much must depend on the skill of the operator, and one man may fail altogether in his attempt to deliver, when another may bring away the child with comparative facility. On the whole, perhaps, the rule may with advantage be laid down as follows:— If the passage of the pelvis be three inches throughout in length, and one inch and three-quarters throughout in breadth, and if the operator possess the necessary skill, then let him bring away the child by the operation of embryotomy; if, on the contrary, the capacity of the passages be not equal to that I have stated, and if the operator be wanting in dexterity, and unable to call in some person who may be more expert than himself, the Cæsarean operation must be performed.

A robust country woman, in vigorous health, the mother of several children, was thrown out of a cart, which went over her, and broke her pelvis to pieces. She was carried home and lay a long time, but at last recovered. She again became with child, and was attended by a woman, but the pelvis was so contracted by the displacement of the fractured bones, and the mass of osseous matter by which they were consolidated, that the midwife was unable to deliver her. Mr. Barlow of Blackburn, who used to relate the case, was called in, and found that she could not be delivered without the performance of the Cæsarean operation. As soon as she was willing to submit to it, feeling there was no hope in any other way, he performed it, and the child was extracted, but it was dead, (probably before the operation its vitality was become extinct,) but the mother herself did very well; in a fortnight after the incisions were made she got up, and in three weeks she was attending to her usual concerns. Now I mention this case as a rare instance of the success of the Cæsarean operation, for in general that operation, as performed at present, proves fatal. I mention it also as an instance of the operation being required, in consequence of the fracture of the pelvis, and a high contraction of it produced by this cause.

But I put another case, which ought to be duly weighed before you engage in practice, as the life of some unfortunate woman may depend on your previous consideration of it. I will suppose a woman has a high contraction, and is in the early months of gestation; I will suppose she may not have gone above one or two months: now in this case, of course it would, if practicable, be desirable to introduce an instrument into the uterine cavity, so as to *discharge* the *liquor amnii*, and in that way bring on a *premature delivery;* but very probably you might not be able to

enter the uterus, nay, you might not be dexterous or fortunate even to feel the os uteri; now under these circumstances another operation, and an operation which I would strongly recommend to your attention, might be attempted. Make an opening a little above the symphysis pubis, in or near the *linea alba*, carefully avoiding the bladder; at this opening introduce one of your fingers, say the fore-finger of the left hand, so as to get a bearing on the uterus; this accomplished, take some slender pointed instrument, pretty stiff, and by a sort of acupuncture, carry this instrument through the body of the uterus into its cavity, and on entering the uterine cavity, move the wire cautiously, yet effectually, in different directions, so as to break the ovum to pieces, and put an effectual stop to the generative process. The ovum destroyed, draw up the *fallopian tube*, which is easily done, first on the one side, then on the other, cutting out a portion of it, so as to render it impervious, by which the woman would for ever afterwards become sterile. By this operation, successfully performed, you will at once secure the woman against the Cæsarean incisions, and preclude the risk of her ever becoming pregnant again. I am induced to believe, that unless the fluid discharged from the ovaries above come into contact with the *seminal fluid* derived from below, a *new ovum* cannot be produced. Now this contact, the imperviousness of the tubes will effectually prevent, and thus prevent impregnation. In performing the operation, I should be very careful to *break up the ovum thoroughly*, even if I laboured for fifteen or twenty minutes together.

But what is to be done in those cases, where a woman is known to have this contraction of pelvis, and though married, is yet unimpregnated? *Abstain.* But women have not always the power of abstaining, and unluckily they become pregnant. Dr. Hall knew a woman who, having this sort of pelvis, was informed of it, and who, after abstaining some five or six years, became ultimately impregnated. In the early months of pregnancy, an operation to occasion the expulsion of the ovum was very properly attempted, but failed. In the course of two or three months after, labour supervened, but too late; the fœtus was too bulky, the parts became contused, and she died. Then what is to be done in the case of a woman so circumstanced and unimpregnated? If she distrust herself, I should recommend an operation, not, perhaps, wholly without difficulty and danger, but so far preferable to the Cæsarean incision, that I should not hesitate to advise it. I would make the small opening which I described before, not for the purpose of taking away the ovaries altogether, for that would unwoman her, but to take away part of the fallopian tubes; and this I should more especially recommend, if a woman laboured under a contraction of the pelvis from fracture, and if her general health were good.

LECTURE IV.

CONTRACTED PELVIS.

The distorted pelvis, contracted in high degree, is by no means frequent in obstetric practice; but those coarctations, which are accompanied with little or no distortion, and in which the contraction is slighter, are by no means uncommon; and more especially are they liable to be met with in large manufacturing towns, as Glasgow, for example, Leeds, Manchester, or this metropolis. On this account, therefore, although these contractions make but little show, they become peculiarly deserving the attention of the obstetric student.

When contractions of the pelvis occur in slighter degrees, those contractions may affect any part of the bony structure; sometimes the *false pelvis* is the seat of the contraction; and sometimes the *brim*, the *cavity*, or the *outlet* of the true. It deserves remark, however, that contractions of the *true pelvis* only are of much importance in the practice of midwifery. And further, that of the contractions of the *true pelvis*, those which create the most frequent difficulties, and which, at the bed-side, are found the most frequently to require the use of instruments, are almost invariably found at the *brim* of the pelvis—a fact of great interest; and therefore, whenever you suspect that there is a pelvis contracted in such a degree that the lever, the forceps, or the perforator may be requisite, the brim is the part of the pelvis that you should first, and most carefully, examine. When those contractions occur at the brim, it *rarely happens* that they lie *between* the *sides* of the pelvis; they are found *almost invariably between the front and the back* (terms which I use in a lax sense). This contraction between the back and front may be produced either by the approximation of the symphysis pubis to the promontory of the sacrum, or by the thrusting of the acetabula towards the promontory of the sacrum. When contraction of the pelvis arises from the former cause, no distortion whatever is observed; but when it is produced by the latter, namely, by pushing of the acetabula, then, together with contraction, some loss of symmetry will be noticed. This you have an opportunity of seeing, in some of the pelves which I now exhibit to you; and, first, I show you the standard pelves of full size. On laying the child's head into it, the capacity evidently appears too great to require the use of forceps. In the second place, I show you a pelvis slightly contracted at the brim. The outlet here is capacious enough, but at the brim, between the front and back, it is contracted, the symphysis pubis being pushed upon the promontory of the sacrum. On putting the head into this pelvis, you may observe that it completely fills the space between the sacrum and the symphysis; so that if the head

were large, and the pelvis small, the fœtus could not be abstracted without the help of instruments; the forceps, for example, or the lever. I show you, in the third place, a pelvis still more contracted than the preceding, in consequence not merely of the advance of the promontory of the sacrum towards the symphysis pubis, but of the retreat of the acetabula. Through a pelvis like this, the head would not come down, unless previously reduced by that dreadful instrument, the perforator. Here, lastly, is a pelvis, in which you see the contraction again in much higher degree, approaching to the former class of coarctation, the distorted, I mean, occasionally demanding even the *Cæsarean operation.*

These contractions are sometimes *very partial* — a fact which I find important in my own practice. It sometimes happens, that the outlet of the pelvis alone is the seat of the contraction, but that is not common: much more frequently we find contraction of the brim, while the outlet is capacious enough. Now, in cases like these, the fœtus is sometimes very unexpectedly expelled. Let the womb act, let the child's head advance but one inch perhaps, and after some hours of labour, when delivery is unlooked for, suddenly the head bursts into the world, while the accoucheur, engaged in washing, or dressing, or refreshing, returns to be informed, that during his absence the fœtus has been expelled. Here is a pelvis in which the outlet is most capacious, while the brim is contracted to such extent, that reduced by the perforator, the head could scarcely be abstracted, unless the operation was performed in the seventh or eighth month, when the cranium is small.

Thus much, then, respecting the obstetric anatomy of the *contracted* pelvis. Recollect all parts of the pelvis are liable to be contracted in a greater or lesser degree, but that those contractions requiring the use of the instruments are usually at the brim. Recollect also, that those contractions which are at the brim may now and then be placed between the one and the other side; but that contractions requiring instruments are rarely so situated, being found almost invariably between the front and the back. Recollect further, that these contractions between the front and the back are produced by two causes; the one, the pushing of the symphysis pubis towards the promontory of the sacrum, the other, the thrusting inward of the acetabulum on either side; the latter contraction being attended with a certain degree of distortion. Recollect lastly, that when contractions occur,—and this is a practical fact of no small importance, — they are sometimes confined to a particular part of the pelvis; they may be placed at the outlet; but are more generally found at the brim, so that if the head once pass the brim, whether under the use of instruments, or by the natural efforts, all further difficulties vanish.

When the pelvis is contracted, the birth is more or less obstructed, especially if the fœtus be larger than ordinary; but in these difficulties, the rules of management are simple and intel-

ligible. If no dangerous symptoms appear, we ought to give a fair trial to the full efforts of the uterus for four-and-twenty hours after the discharge of the liquor amnii, abstaining as long as may be from the use of instruments, for they are great evils, and a meddlesome midwifery is bad. But should dangers arise referrible to the prolongation of the labour, or should the woman be in labour for twenty-four hours after the discharge of the liquor, the head not advancing, you would then, if skilful, be justified in making trial of the lever or the forceps, constrained by an over-bearing necessity. Further, should dangerous symptoms become pressing, or should the womb have been in action for eight-and-twenty hours, the head still not advancing, the lever or forceps having failed, though used by the most dexterous hands within reach, — perforation, a dreadful operation, of tremendous responsibility, would become justifiable. Or lastly, should a woman, losing half a dozen children successively, in consequence of deficient room, again become pregnant; under such circumstances an attempt might be made to facilitate her delivery and save the fœtus by inducing parturition at the end of seven months and a half, when the parts of the fœtus are small, and its power sufficiently great to render its preservation probable. Instruments are never to be used but with reluctance, and when the necessity is inexorable, when conscience tells you that you would wish their employment in the case of your nearest relative.

There are *three principal causes* by which distortions of the pelvis and the contractions on which we have been making observations are produced; and these three causes are *mollities ossium*, *rickets*, and the *fracture* of the bones. It sometimes happens, though happily rarely, that the skeleton is attacked by a disease generally fatal, under which the *animal* matter *predominates* and the *osseous* matter is *deficient;* the result is *softening* of the bones, so that, yielding like tempered wax, they become distorted in every part of the skeleton to which pressure is applied. It far more frequently happens in unhealthy situations, where children are pale, weakly, and ill-nourished, that the form and capacity of the pelvis is altered in consequence of rickets, a disease allied to mollities ossium, except that it is confined principally to the earlier period of life. Here you have as before the animal matter redundant, the osseous matter deficient, and some softening of the bones. Contractions of the pelvis, where you have not the higher degrees of distortion, are principally occasioned in this manner by rickets; and on this account, where children are known to be rickety, female children especially, you ought to give particular directions that they be not put too early to the ground. It is wrong even in the case of males; but by putting a young female, when prone to rickets, to the ground too early, you may give rise to one of those contractions of the pelvis which may be the torture of her future life. Fracture of the bones is not a common cause

of their distortion; now and then, however, it occurs, and where it does, usually gives rise to the higher degrees of contraction.

SMALL PELVIS.

If a girl become early impregnated, as in Eastern countries, at the age of twelve or thirteen years, for example, in common with the other parts of the skeleton, the pelvis will be small; and of course the pelvis will be of small size if the woman, though of full age, be of *dwarfish* stature. By a small pelvis, then, you are here to understand a pelvis which preserves its proportions and symmetry, but in which all the measures are unusually short. When the pelvis is small the woman is small, the child is small, and the parts corresponding with each other, parturition becomes easy; but this, however, is not invariably the case, and thence sometimes difficulty arises. A woman with a small pelvis has occasionally the misfortune to produce very large fœtuses; I myself know a woman, not exceeding the ordinary stature, who has produced several children, one of whom, to my own knowledge, weighed eleven pounds at birth, and the other nearly seventeen, though the general weight is only seven. Unhappily for females who are of a small size, the stature, or other qualities of the father, seem to have an effect upon the child. A friend of mine had in his possession two dogs, one of them a somewhat small bitch, the other an unusually large animal, and a male. Unluckily for the female a connection was accomplished between them, and six puppies were produced; of those three were expelled, not apparently without much difficulty, but the other three remaining could not be emitted, so that the poor animal died undelivered. Now this I state to you, first, as an example of the difficulty of parturition occurring in an animal; and secondly, and principally, for the purpose of satisfying you that the largeness and other qualities of the male parent, like those of the female, may influence the bulk of the fœtus. But what is to be done if a woman have a very small pelvis and a very large fœtus? Why, that is to be done which you would find necessary in a case of contracted pelvis; you must proceed exactly on the same principles. You may be compelled to use instruments, but not officiously and pragmatically interfere; give a fair trial of four-and-twenty hours to the natural efforts if no dangerous symptoms appear; if the natural efforts fail, or dangerous symptoms manifest themselves, make use of the lever or forceps; if they do not succeed, and dangerous symptoms attack the patient, or if the woman have been in labour six-and-thirty, or eight-and-forty hours, lay open the head of the child by embryotomy, — a repetition this of the rule before prescribed.

LARGE PELVIS.

As a pelvis may be small in all its dimensions, so also, on the other hand, we sometimes meet with one that is *unusually capacious*, and might be supposed to belong to the skeleton of some giantess. Large in all its dimensions, a pelvis like this will not of course give rise, in ordinary circumstances at least, to difficulty during labour. But there are other evils not to be despised, and which are produced by this deviation from the standard. Having a large pelvis, women become more obnoxious to a disease called *retroversio uteri*, the nature of which may be more fully considered hereafter. Under this disease the *womb*, in the third or fourth month, having acquired the size of the head of a large full-grown fœtus, will now and then change its position, the *fundus* lying below the promontory of the sacrum, and the *mouth* rising and advancing. To this displacement all women, indeed, are obnoxious, but those more especially of whom the pelvis is large, there being more room for the retroversion to take place. Among the evils resulting from a large pelvis, this one is not to be forgotten, — the greater facility with which the womb becomes retroverted.

There is another disease to which all women are exposed, those more especially who have a large pelvis, and in whom the parts are relaxed; and this troublesome affection is the descent of the womb. Varying in the degree of descent, the womb sometimes comes down a little way only, and sometimes just appears through the outlet in front, and sometimes lies out a considerable distance between the thighs. Now this descent of the uterus, to which I have said all females may be subjected when the parts are relaxed, occurs most frequently where the pelvis is capacious, not only in the *earlier*, but sometimes in the *later periods* of gestation. There is a case related in which the womb, during labour, actually protruded beyond the external parts before the mouth was fully opened, so that the *os uteri* could be distinctly seen, and the child behind it; in this case the pelvis was over-capacious. You may therefore set down as a *second evil*, resulting from this over-capacity of the pelvis, the greater facility with which the *prolapsus of the uterus* is apt to occur in maids, and mothers during gestation, or in the unimpregnated state. But of all the evils resulting from the largeness of the pelvis, the last which I shall mention, and the most important, is the *unexpected* and *sudden* manner in which the child is sometimes pushed into the world. A woman is walking in the street; she attempts to cross to the other side, perhaps a little agitated, and the child drops from her. In a carriage the motion of the vehicle is considerable from the roughness of the road, not *Macadamized*, and the child comes away. The woman feels an irritation of her bowels, not uncommon when parturition is about to commence; she retires, makes an effort, and loses her

child. Dr. Lowder used to relate a case which is well illustrative of this, and calculated to make a useful impression on the mind:— A patient of his had a pelvis unusually capacious; the softer parts were relaxed; she was the mother of many children. He called on her to know whether she had any pains, desirous not to be out of reach when labour might supervene; she had none; he returned promptly to his own house, and by the time he reached the door he found the husband had arrived there, too, to tell him that the child was born, adding, that when he left the house the lady, in crossing the floor of her drawing-room, was seized with the *single pain*, by which the fœtus was expelled. Thus it is by no means improbable, when the parts are relaxed and the pelvis is capacious, that the child may unexpectedly be expelled, and precipitated into situations of most imminent danger.

Now this enables us to answer a question, which may be put occasionally in a court of justice, and to which you should always be prepared with a reply, namely, whether it be possible that a woman may be delivered without knowing that labour is about to occur at the time. I will suppose that a woman becomes the unfortunate subject of an illegitimate pregnancy; I will suppose further, that moved by that modesty which seems to be ingenerate in the sex, she is induced, without evil design, to delay a disclosure till delivery render it inevitable. I will suppose, too, that a woman thus circumstanced, with a pelvis which is capacious, with a fibre which is thoroughly relaxed, feeling bowel irritation, retires; the womb acts, the fœtus is at once precipitated; she hears no cry, — she deems it lost; she has a moment to take her determination, — she decides amiss, — she has not the resolution to step forth and promulgate her shame. But circumstances create suspicion, the child is discovered, she is summoned into court. Then comes the question for the accoucheur,— is it possible for the child to be precipitated before the mother is aware? To this it may be replied, that if the pelvis be large, and the softer parts relaxed, it is not only possible, but in a manner probable. On occasions like these, substantial justice requires that women should have the full advantage of every leaning in their favour. The laws and customs of mankind are of the masculine gender, —who are the legislators is very obvious. Not to mention the male tyranny of Asiatic, or semi-barbarous nations, — notwithstanding the influences of chivalry, our own system, with respect to woman, is austere enough, perhaps oppressive. Unmarried, perhaps, because the over-wrought civilization of society renders a family a burden; solicited, because the lawgivers and custom-makers assume to themselves, without shame, a sexual license, — their boast often instead of their infamy; deprived of caste, like a contaminated Indian, if the offence be detected, — with no effective public provision for the foundling, a woman becomes a mother, and is driven to a crime the most revolting to maternal instinct. Law follows; the crime is execrated; the culprit is suspended

to the gallows by the very sex which has so large and solid a share in the offence; the very sex which, in this country, has turned the accoucheur with his perforator loose upon society to open the heads of living children without accounting to any, and then —— to dinner! Let it be remembered, then, that some of these unfortunate creatures are to be looked on rather as victims than criminals.

Thus much respecting the different forms of pelvis, so far as they are interesting to the accoucheur; the standard, the large, the small, the contracted, and the distorted. Other varieties of the pelvis you will also meet with in practice, but they are of so little importance that I forbear to dwell upon them. Sometimes the *wings* of the *ossa innominata* are unusually *spread out*, and in other cases you will find them *more erect*. In general I have said the brim is oval; sometimes it is rounded. In some pelves you will find the spines of the *ischia* long and penetrating far into the cavity. I have already told you that the coccyx, consolidated by osseous matter, may be at right angles with this bone, so as to occasion an obstruction. Now and then osseous matter is placed on the promontory of the sacrum, giving rise to difficulty in parturition.

MEANS OF ASCERTAINING THE KIND OF PELVIS.

Of the means of ascertaining in the living subject the kinds of pelvis which nature has allotted to the patient, I shall now proceed to speak, for you must be aware that it would be of little consequence to know there are varieties of pelvis, requiring a corresponding diversity of treatment, unless you can, at the bed-side, state with tolerable certainty upon which of these pelves it is your duty to operate. Independently of a very accurate *internal examination*, which is not always practicable, you may often form a very useful and probable conjecture whether a woman have such a contraction of her pelvis as is likely to give rise to difficulty in parturition in the following manner: when the pelvis is contracted, not unfrequently the result of rickets in early life, or of mollities ossium; in these cases, the other parts of the skeleton are suffering too. Now, though it does not invariably follow that where you have distortion of the arms, legs, fingers, toes, or spine, the pelvis should be contracted so as to give rise to difficulty, yet in such case, pelvic distortions are by no means improbable. Observe, therefore, the other parts of the skeleton, and you will be able to form an opinion respecting the pelvis.

You will sometimes find persons distorted in a high degree about the upper part of the spine, in consequence of some *local disease* there, the pelvis notwithstanding being of the natural dimensions; you are not, therefore, hastily to infer, because there is a distortion of the upper part of the spine, the result of topical disease, that there exists a distortion of the pelvis; for very considerable spinal

distortion will take place without distortion of the pelvis. But if the person be labouring under distortion of the *lumbar vertebræ*, particularly the lower lumbar vertebræ, — more especially if she have an *unusual hollowness in the loins*, then generally contraction of the pelvis will be found to exist. A woman distorted in a high degree was brought to one of the medical schools at Paris, and there was, among the pupils, some whisper about the Cæsarean operation, but while they were considering the point, the child suddenly came into the world; and it is remarkable that this woman became a mother by a French *grenadier*. The woman died afterwards, and it was found that there was only a slight contraction of the pelvis. There was another female, with what is called *a hump* on the back, brought into one of the French hospitals; and this woman being asked whether she had borne any children before, replied she had six all born alive. Therefore you must not infer generally, from a case of distortion of the spine, especially of the upper part of it, that there is a distortion of the pelvis; nevertheless, where you have this hollowness of the loins, contraction of the pelvis may always be *suspected*. In this pelvis you see there is but an exceedingly small space between the front and back, so that embryotomy would be necessary to delivery. The arts of *dress* would conceal, in great measure, deformities of this kind. I have seen the spine distorted in a high degree, and the pelvis very large notwithstanding, and very little distorted.

Where you are anxious to know whether a woman has full capacity or not, there is yet a *third* inquiry to be made, and that is, concerning the result of *previous* labours. If the woman have had five or six children all born dead, or all requiring the use of extracting instruments, or all sacrificed to the perforator, though the practitioner, not being your rival, may be supposed to have talent, there can be no doubt that there is a want of capacity there; on the other hand, if you learn that the children have been born alive, in whatever state the parts may be, it is quite clear there is a sufficiency of capacity, unless, which is highly improbable, subsequent contraction have occurred. By inquiring into previous labours, by cautiously making your observations on the spine, and by examining the skeleton generally, you may form a very probable opinion, whether the pelvis be of full capacity or not.

When women are in labour, knowing, as they do, the necessity of the operation, in general they cheerfully submit to *internal examination;* and this being the case, you, as accoucheurs, have the means of ascertaining the variety of pelves on which you may have to act. With a view of ascertaining the measures and dimensions of the pelvis, our Gallic neighbours have contrived an instrument sometimes called a pelvimeter, an implement not to be altogether despised. The instrument was invented by Coutouli. It consists of *two rods;* the one slides along the other in a groove; upon the *superior rod* there is a graduated *scale of inches*, and at the end of each rod is an upright. The mode of using the instru-

ment is twofold: you may, where the soft parts are relaxed in a high degree, use it *internally*, or you may apply it *externally*. When you apply it internally, placing one upright upon the *symphysis pubis*, and the other against the *promontory of the sacrum*, you may read off by the scale of the distance between the two. If the parts are too rigid to admit of your using it internally, then you must lay one upright against the projection of the promontory, and the other to the pubes; and *seven or eight lines* must be deducted as an allowance for the thickness of the soft and harder parts in front, — the difference will give you the clear space between the front and the back. By accoucheurs of some repute, there is another instrument much applauded, and this instrument is nothing more than a pair of bow *compasses*, more useful perhaps than the other, because of very easy application. The method of using them is this: you place the one point on the symphysis pubis, the other on the spinous process of the last lumbar vertebra; then deducting *three inches*, in that manner you obtain the clear space, interposed between the sacrum and the symphysis pubis. This is an instrument I do not use myself, for I measure the pelvis in another way, as I shall now explain to you; but I deem it an useful one.

Besides these methods, you may also measure the pelvis *very sufficiently* by means of the *fingers*. If you want to know the distance between the front and the back, let the fore-finger be placed on the promontory of the sacrum, and the root of the finger at the arch of the pubes. To measure the brim from side to side you may *spread out* the fingers, — introducing all the fingers closely together, and then spreading them from one side to the other. But a better method of measurement consists in the application of all the fingers to the *back part* of the symphysis pubis. If there be a want of room behind the pubis, you will then feel something of an *angle* there. If the brim be of full measure from side to side, when all the fingers are introduced and placed behind the symphysis, they will lie all in the same place. If you wish to measure the *outlet* of the pelvis, the most convenient time to accomplish this is when the child's head is there, and certainly then the inquiry becomes most important. You may easily pass your fingers round between the bones and the head, and so ascertain whether there is a sufficiency of space. If you think it worth while, however, before the head descends, you may measure the outlet of the pelvis from front to back, first by putting the fingers so that the root of the index lies against the arch of the pubes, and the tip of it upon the coccyx, thus ascertaining the measure between the front and the back; secondly, by laying all the four fingers into the arch of the pubes, when you ascertain the distance between the tuberosities of the ischia — in other words, the measure from side to side. However, all these I pass over, because in general practice you will find them but of little importance.

When the pelvis is contracted in a slight degree only, and you

have one of those difficulties arising from that contraction between the front and back, of which I have said the brim is the most frequent seat, there is another mode of ascertaining the deficiency of room, which experience has led me to prefer before the preceding. If I were called to a woman supposed to labour under this contraction, my first inquiry would be, How many children have you had? 'Twelve,' she might answer, if she were of the lower class of life. Were they born *alive* or not? If she told me that all or most of them were born alive, I should thence infer that contraction of the brim was by no means probable. Now this is a question which any of you can put as well as the most accomplished professor; it is so easy and so important that it ought to be your first inquiry. On the other hand, if she were to say, 'All my children were born *dead*, sir;' then I should suspect a contraction. If I suppose a woman has a contraction of the pelvis, after making the inquiry I have mentioned, I make a careful examination with my fingers: and if a pelvis be of full size, I find myself there is no difficulty in reaching the promontory of the sacrum, though you, commencing practice, may perhaps not be able to distinguish it, because it lies so distant from the symphysis pubis, that the fingers must reach very far to find it; but if I find the promontory coming forth as it were to meet the tip of the finger, so that in a manner we blunder upon it, then I know that contraction exists. To judge in this manner, however, it is necessary that you know the promontory when you feel it, a piece of intelligence which all do not possess. I have known the promontory mistaken for the child's head; and I have heard of an attempt to introduce the perforator in such a case. If a patient have a pelvis in which contraction is suspected, I inquire in the third place, how long she has been in labour? If I find that she has been in labour *only an hour or two* after the discharge of the liquor amnii, I do not infer there is a want of room at the brim; but if she have been in very strong labour, for twelve or twenty-four hours after the discharge of the liquor amnii, the softer parts being relaxed, and the fœtus making no progress, the probability is that room is deficient.

Suspecting contraction of the pelvis, in the *fourth* place, I make my examination very carefully of the state of the child's head, always to be felt. If it be not swelled, but apparently in a good condition, I have proof that it has not been injured by long pressure; and I have presumption that there is no deficiency of room; but if, on the contrary, the parietal bones are lying over each other so as to form a ridge, and if the head feel considerably swelled and soft so as to resemble the breach, I infer that it has been subject to much compression, and that room is wanting.

In the last place, as I wish always to ascertain this point with as much accuracy as may be, as soon as the head is fairly come down among the bones of the pelvis, I endeavour to pass the fingers between the symphysis pubis and the cranium, inferring on the one hand, that room is wanting, provided they cannot be passed

up, and on the other, that the pelvis is of full capacity at its brim and in its cavity, if the fingers can be lodged between the head and bones without difficulty: that this observation may have value, however, it is absolutely necessary that the head, as observed above, should be thoroughly within the pelvic cavity. So then, by passing the fingers between the bones and the head, by ascertaining what is the condition of the head, and more especially the existence or absence of an intumescence of the scalp, by learning what has been the duration of the labour under strong pains after the discharge of the liquor amnii, by making out whether the promontory of the sacrum can be felt with facility or not, and by inquiring of the patient what has been the result of previous labours, I am enabled in most cases at the bed-side to say without difficulty, whether there is such a contraction of pelvis as demands the use of instruments. To me it matters little what is the precise measure below or above. With lines of an inch or a quarter of an inch I have little concern; all I want to know is, whether there is such a contraction above as to require the use of instruments; and by the preceding means, independently of nicer measurements, I am enabled to ascertain it.

LECTURE V.

COMPARISON OF THE MALE AND FEMALE PELVIS.—PASSAGE OF THE FŒTUS THROUGH THE PELVIS.

COMPARISON BETWEEN THE MALE AND FEMALE PELVIS.

Although the accoucheur has not to operate upon the *male* pelvis, and therefore takes but a small interest in it absolutely considered, yet as there are some striking differences between the pelvis of the corresponding sexes, and as the comparison and observance of these differences are calculated to render our ideas of the *female* pelvis more exact and prominent, it may not be amiss that we should enter on them.

If I place the female by the side of the male pelvis, comparing them, I remark that in the male pelvis there is a certain *roughness*, *bulkiness*, and *weight*, which strikingly contrast it with the *lighter*, *smoother*, and *more elegant* pelvis of the female. In the male, too, I find the ilia, or wings of the ossa innominata, are more erect,—in the female more expanded. In the male the brim is more rounded, though tending somewhat to an ellipse, the long diameter of which stretches from before backward; in the female, the brim, though sometimes rounded, is generally oval, and the long diameter lies between the sides. In the male, the pelvis is deep:—in the female, the pelvis is shallow. In the male you have a very small

outlet; — in the female you have a very capacious one. In the male the arch of the pubes is contracted; — in the female it is capacious, to make room for the more ready passage of the head.

An *effeminate pelvis* we sometimes meet with in the man, as the whole subject may partake more or less of the feminine character; in women, on the other hand, we sometimes meet with pelves having much of the *masculine make*, as the whole person may exhibit the character of a virago or a Narcissus; nevertheless, where the pelvis healthily formed possesses its ordinary characteristics, nothing is more easy for the accoucheur than at one glance to distinguish the sex to which it belongs; and were I to select from the various sexual characters enumerated, any single mark more sexual than the rest, it would be the size of the outlet generally, and more especially the size of the arch; always contracted in a well-formed male pelvis, and always extended in a well-formed female.

BEARING OF THE PELVIS ON THE SPINE.

In practice the accoucheur finds it of no small importance to have a correct notion respecting the bearing of the pelvis on the spine; and as, illustrating this bearing, we shall have occasion to speak of the *plane* of the brim, it may not be amiss that I should define, at the outset, what is intended by that term. By the plane of the brim, then, I mean an *imaginary surface*, closing in the superior aperture of the pelvis, forming a sort of *flooring* there, to use a familiar illustration, as a piece of card-board might do.

When we first give our attention to the bearing of the pelvis on the spine, some perhaps get a notion that the plane of the brim and the spinal column are placed in a line with each other; while others still more frequently imagine that the pelvis is so placed with respect to the vertebræ, that the plane and the spine are at right angles with each other, the sacrum lying directly backward, and the symphysis pubis directly forward. In truth, however, it is in neither of these bearings that the pelvis unites with the spine, but it is placed in such a manner that the plane and the spine form an obtuse angle with each other, the sacrum lying above and posteriorly, the symphysis anteriorly and below, and therefore it is the uterus resting on the pelvis as its pedestal, so that in the end of gestation, when the womb acquires a large size, it is not placed in the abdomen erect; and you would err greatly, and become very embarrassed in your manual operations, were you to be deceived by this idea. In the living female, when the womb, enlarged by gestation, is resting on the brim, the mouth and neck lie inferiorly and backward, while the fundus, or upper part, is placed anteriorly, so as to lie out beyond the ensiform cartilage. Recollect this is of no small importance in turning the fœtus; — if, for example, the arm present — if the feet of the child are lying in the fundus uteri — if you are compelled to carry the hand into the

fundus in order that you may reach and grasp these feet — the hand must not be passed directly upon the centre of the diaphragm, but upward and anteriorly in such manner that it may project beyond the ensiform cartilage, where the fundus is placed. Observing this rule, you may turn with comparative facility, while considerable embarrassment may arise from its neglect.

By knowing the bearing on the spine, though you cannot see the pelvis, you are further enabled, in the living female, to place this part of the skeleton in any direction necessary for your operations. It rarely happens, that we are desirous that the pelvis should lie with the sacrum above, and the symphysis pubis below, that is, with the plane vertically. Yet, now and then, the position may have its advantages, and this position the pelvis assumes when the woman inclines the body forward a little; more frequently, we are desirous to give the pelvis such a position that the plane of the brim may lie horizontally. Perhaps you wish to feel the head through the cervix uteri, or you are anxious to ascertain the weight of the uterus by balancing it upon the finger. Now, in this position of the pelvis, you will most easily make both these observations; and this position is obtained by placing the patient in a semi-recumbent posture, with the shoulders a little elevated — in a word, half sitting, half lying. When there is a *retroversion* of the uterus, in order that the womb may fall back into the healthy position; inverting the pelvis, we sometimes place it with the fundus above. This position you obtain by depressing the shoulders, and raising the hips — in other words, by placing the woman on her knees and elbows; and frequently the bladder being thoroughly evacuated, this position alone will be sufficient for the reduction of the uterus. But to recapitulate; if you would place the plane of the brim vertically, let the woman bow; if horizontally, let her be semi-recumbent; if inverted, let her take position on her knees and elbows.

PASSAGE OF THE CHILD.

Let us now proceed to the consideration of the passage of the child, beginning with the examination of those properties of the child, of which the knowledge is important to the thorough comprehension of its transmission through the pelvis. Examining it obstetrically, I soon perceive that the fœtus may be conveniently divided into *three* parts—the *head*, *trunk*, and *extremities* — superior and inferior. Of these three parts, it is the head only which requires attentive study, as under the natural presentations it is the head that constitutes the principal impediment where a labour is obstructed. Rarely is there much difficulty in abstracting the trunk and extremities; though, now and then, it is true, if the shoulders are large, they may not descend with ease; besides, there are no differences between the trunk and extremities of the fœtus and of the adult, which, from their effects on parturition, re-

quire the study of the obstetric practitioner. This being the case, then, with a view of simplifying our subject, our observations on the fœtus will be principally confined to its head, the cranium especially; and I may set out by observing of the head, what I have already observed respecting the pelvis — I mean that no two, perhaps, may be found precisely similar to each other. Of these differences in the make of the head, however, there are some, in a practical view, of little importance, on which therefore I forbear to dwell; while others there are of no small interest to the accoucheur, requiring a larger consideration from us. In a view to their consideration these more important varieties may be divided into two classes, viz., of those which are of *standard make*, and of those heads which deviate from the standard: and first of the standard, or that variety of head which on the whole is most frequently met with in practice. Examining the standard head of the fœtus, one of the first observations which I make upon it, and not the least important, is that it resembles somewhat the *egg of* the *ostrich* — a large oviform mass, the long diameters of which are lying between the front and back, as the short diameters are from side to side. In the measures of this oviform cranium there is considerable variety; and it becomes the less requisite, therefore, that we should with accuracy recollect its dimensions. But though it be not necessary that we should bear in mind the precise number of lines and inches contained in the different diameters of the cranium — yet thus much is never to be forgotten, particularly when the birth is obstructed; — that the long measures of the head are lying between the front and back, — and the short between the sides. As, however, you should be acquainted with the average measures of the head, a few words here will not be useless or misplaced.

From side to side, between the tuberosities of the *parietal bones*, an average measure may be about *three inches and a half.* Between the front and back — from chin to vertex, the average is about *five inches and a quarter;* and this is its greatest length. From the lower part of the occiput to the upper part of the forehead, the measure on an average is about *four inches;* — and from the lower part of the forehead to the upper part of the occiput, about *four inches and a half.* The head measured in this manner at its different parts giving different lengths, you will find in practice that it occupies more or less room, according to the position in which it lies with respect to the aperture that transmits it. Now the important fact to be carefully remembered is, that the head must occupy much less room in the pelvis in some positions than in others. A meddlesome midwifery is a bad midwifery (frequently I shall repeat this axiom). In ordinary labour, the accoucheur has little to do: — he sits at the bed-side — he watches the progress of the labour — he supports the perineum — he receives the child — he ties the cord: in the first part of the labour his duties extend no further; nor is it necessary that he should consider

the advantages or evils resulting from the varying positions of the head; but in cases of difficulty, when the head is large, or the pelvis small, and you are compelled unwillingly to have recourse to manual or instrumental assistance, then indeed it becomes important to know in what position you can place the head, so as to occupy the least room. Now suppose a child were descending through a contracted pelvis, feet first, that is, under the crural presentation; in a case like this, it would become my duty to assist the descent, as detention in the pelvis would endanger life. If I place the head when at the brim with the face in front and the occiput on the promontory of the sacrum, the long measure of the head being opposed to the short measure of the superior aperture; the head could not be drawn through; — nay, if I rectify this malposition, and lay the face and occiput respectively in the sides of the aperture, still if the chin be on one side, and the vertex on the other, the brim becomes filled completely, and the head passes not without difficulty; but if I gently draw the chin of the fœtus upon the chest, placing the head so that the shortest of the three long diameters (that stretching between the summit of the forehead and the lower part of the occiput) may correspond with the long diameter of the brim, a large space is obtained. To give another example: the pelvis and head, being of standard dimensions, if the face lie forward throughout the delivery, of course a difficulty is produced at the brim, the long diameter of the head being opposed to the short diameter of the aperture: and if I suffer the chin to start from the chest, so that of the three long diameters of the head, the longest becomes opposed to the short diameter of the brim, extraction becomes impracticable; but if I carry my knowledge of principles into practice, if I recollect the brevity of that diameter which stretches between the upper part of the forehead and the lower part of the occiput, and if by placing the chin on the chest, I bring this shortest of the three long diameters to a correspondence with the short diameter of the brim, the head readily descends. Cases of this kind will be fully considered hereafter; and I wish merely to impress on your minds the advantage of remembering in practice, which are the longer, which the shorter measures of the cranium, and of giving positions to the head accordingly.

The cranium of an adult we find to be compact and unyielding, but not so the cranium of the fœtus, for this possesses a degree of flexibility and conformability fitting it for certain changes of form and diminutions of bulk which materially facilitate its transmission through the pelvis; and this conformability of the head, a most valuable obstetric property, arises from the *nature* of the *sutures*, which, instead of being compacted edge to edge, or united by seration, as in the adult, are put into connexion with each other by means of *cartilage*, a yielding substance which communicates to the head a degree of softness and conformability; and hence it sometimes happens, in consequence of this conformability, that although in the morning of the day the cranium cannot be ab-

stracted, even with the lever or the forceps dexterously used, yet in the evening the head may descend easily enough, and the child may be born alive. In the morning, perhaps, the *os uteri* has been laid open, and the water has been discharged for a short space of time only — for two or three hours — the head not having had time to adapt itself to the apertures, to alter its shape, to diminish its bulk; but in the evening, after the long-continued action of the womb, the form is changed, the bulk is diminished, and when prepared in this manner the head descends. Set down, therefore, among the valuable obstetric properties of the head, the conformability of the cranium, resulting from the yielding nature of the sutures, and the *mobility* of the bones.

A knowledge of the position of the head being very important to the accoucheur, it becomes necessary that he consider the characters by which the different parts of the head may be recognised while lying within the body of the mother, a topic to which I next advert. The *eyes*, the *nose*, the *mouth*, the *ears*, are easily distinguished by the eye, but a little attention is requisite to enable you to discriminate them while lying within the womb. I was once called in, in haste, to a reputed facial presentation, the surgeon telling me, that he had put his finger into the *mouth*. On making an examination, I found the nates presented; the rest I leave you to divine. Now there is more difficulty in recognising the mouth of a fœtus than you may suppose, because it is generally destitute of teeth; and I remember very well, when I first had my finger in the mouth of an unborn infant, I scarcely knew where it lay. So with respect to the eyes and nose, you may not be able to distinguish them if you have not been in the habit of feeling them. I advise you, therefore, in beginning practice, on every occasion when a child lies in your way, to pass your fingers over the nose, eyes, and mouth, and indeed the other parts of the body, so as to acquire a familiarity with their tangible characteristics.

To recognise the vertex, the pelvis, and the parts, when lying within reach, you must be well acquainted with certain sutures, and those sutures are the *sagittal*, the *frontal*, the *lambdoidal*, the *coronal*, and perhaps I may say, the *squamous*, a knowledge of which is most desirable in midwifery. The sagittal suture stretches from the front of the head to the back, uniting reciprocally the parietal bones. No suture has the accoucheur more frequent occasion to mention, — its name is familiar to every obstetric ear. The frontal is that suture which is stretching from the sagittal to the root of the nose, sometimes open throughout in the full-grown fœtus — generally open at the superior part, where it meets the coronal and the sagittal. The coronal suture is that which stretches from one side of the head to the other, from ear to ear, crossing the sagittal and frontal at right angles, and connecting the os frontis with the parietal bones. The lambdoidal suture lies at the back of the head, on the occiput, resembling the Greek

capital, whence its name, and uniting the occipital bone with the ossa parietalia. On the sides of the head, the squamous suture is seated, and coalescing also with the os frontis it unites the squamous portions of the temporal with the parietal bones. The squamous on either side, the sagittal, the frontal, the coronal, the lambdoidal — these, then, are the sutures which it is important to recollect.

When I examine the cranium further, with a view to ascertain the features by which it is characterised, I find there are two regions where the *osseous* matter is deficient; and these yielding under the touch, and appearing sometimes to pulsate a little, from what are called the *fontanels* or *moulds*, small and large. The former, situated at the point of meeting between the lambdoidal and sagittal sutures, is of triangular shape, small size, and has three sutures concurrent. The latter, placed at the point of union between the sagittal and frontal sutures on the one hand, and the two lateral portions of the coronal on the other; distinguished by its rhomboidal shape, broad extent, and the meeting of *four* sutures here. And thus it is that in my own practice I am enabled to discriminate these fontanels even within the person of the patient; the greater, by its large size, rhomboidal (diamond) shape, and the conflux of four sutures — the less by its smaller size, triangular shape, and the communion of *three* sutures; the latter characteristic being less decisive, however, because, at the conflux of the coronal and squamous, there are three portions of sutures also. These fontanels are sometimes larger than at others. Little portions of bone (*ossa triquetra*) are occasionally interposed between the edges of the sutures, which, narrow sometimes, are occasionally broader than ordinary. To conclude: in the head of the fœtus, the parts deserving obstetric attention, are the form of the head, the measures, the conformability, the sutures, the fontanels; not to mention the more familiar features by which the different parts are recognised.

DEVIATIONS FROM THE STANDARD HEAD.

The standard head considered, we next proceed to comment on the deviations from the standard, so far as these are important in the practice of midwifery. A head unusually small giving rise to no difficulty in parturition, is of little interest. But when large, it deviates from the standard, and difficulties during the birth are the result, more especially if the cranium be too firmly ossified and the pelvis do not exceed the ordinary dimensions. In cases of this kind, however, these difficulties may be easily managed according to the rule already laid down — always recollecting that a meddling midwifery is bad; when you suspect there is a large head, you are first to give a fair trial to the natural efforts for four-and-twenty hours after the discharge of the liquor amnii, provided no dangerous symptoms appear; dangerous symptoms

beginning on the natural efforts failing, four-and-twenty hours after the discharge of the liquor amnii, the head not advancing, you are justified in having recourse to instruments, (the lever or forceps) never to be used without an overbearing necessity. If you fail in trying the lever and forceps, and dangerous symptoms manifest themselves, or if six-and-thirty or eight-and-forty hours have elapsed after the discharge of the waters, the head making no progress; you would then be justified in laying open the child's head, proceeding on the same principle as in cases of contracted pelvis. The management of this case, therefore, is exceedingly simple; to be conducted on general maxims, no nice measurements of the pelvis are required, no uncertain conjectures respecting the bulk of the head; the rule here given emancipates you from these difficulties; the natural efforts as usual are to be fairly tried; nor may you lay your hands on instruments, till compelled by a necessity which is inexorable.

We sometimes find, that in consequence of *compression* in labour, the head changing, deviates much from the standard, and becomes an important obstetric study. Under the facial presentations, though not universally, yet frequently, the blood accumulates, the features swell, and altogether the parts are much changed, that you have some difficulty in recognising them, even when the child is under your eye, and much more so when it lies within the pelvis. The same with respect to the vertex, for where there is a want of room, where there is a rigidity of the soft parts, and the head does not lie in position favourable for transmission, you may find the parts about the cranium swelled in such degree, that it resembles the breech more than the head; and you may have been in obstetric practice for a considerable time, and boast some hundred of cases under your care, and yet feeling the swelled head the first time, you may not be able to distinguish it from the breech; a piece of tact, which is to be acquired solely by taking every opportunity of examining these swelled heads after the children are born, as well as previously.

The head you will sometimes find enlarged in great degree, from the disease called *hydrocephalus*, a morbid affection by no means very uncommon before delivery, and which I have more than once encountered in my own practice, — known on diligent examination by puffiness of the vertex, by sub-obscure fluctuation there, and by a sagittal suture unusually broad, — broad, for example, as the three fingers. Where the head is hydrocephalic, you may, if you please, carry you hand into the uterus; you may if you please burst the vagina; if you please you may rupture the uterus, turn the child, and pull its head from its body; but have some little mercy. I will not say it is never necessary in cases of hydrocephalus, to turn the child by introducing the hand, but surely such necessity is rare. Meddlesome midwifery is bad; the operation of turning, trifling sometimes, is something tremendous; among the young and the interesting, among the matronly and the

respected, how many have been its victims ! give, therefore, a trial to the natural efforts, by the wise accoucheur never hastily distrusted ; then the natural efforts failing, you may puncture the head, should the lever or forceps, as generally in these cases, be previously tried without success. Under the natural efforts, when the pains are strong, the cranium sometimes bursts open, or the spaces between the sutures being large, the head may become compressed, and notwithstanding its extraordinary bulk, may unexpectedly emerge.

There is yet another variety of the head of no small importance in practice, I mean the head of the *dead* fœtus. Where a child has been dead in utero, perhaps for days before parturition, or where it has died at the very commencement of labour, you will find it undergoes conspicuous and tangible changes. The skin softens, the cuticle desquamates, the brain is pulpified by putrescence, and the contexture of the bones being dissolved, the different pieces of the cranium separate from each other, so that, as Dr. Hunter used to express it, "the scalp with its bones feels like so many nut-shells in a bag." If you find in this way that the head is softened, that the cuticle is coming away in flakes upon the finger, that the cranial commissures are thoroughly dissolved, (the bones detached from each other floating, as it were, upon the pulpy brain,) you may look on the decease of the fœtus as certain. That the mother have not felt her child for weeks together, is no decided proof; — the mobility of the bones alone deserves no reliance whatever; — cuticular desquamation itself, (possible in consequence of cutaneous disease,) is an ambiguous indication; the total dissolution and breaking up of the bony structure of the cranium is the best, and perhaps the only certain sign of death. Many a child, rashly pronounced to be dead, breathes and cries immediately on leaving the vagina ; and the recollection of these acknowledged truths may, I trust, hereafter paralyze some murderous hand, too eager for the perforator.

I shall conclude my remarks upon those fœtal heads which deviate from the standard, by observing that we sometimes meet with heads without brains. By the Germans, in consequence of their resemblance, these crania are called *cat's heads*, a denomination by no means inappropriate. The bone of the occiput, front, sides, and summit are wanting, while those which form the basis cranii are perfect. This defective organization I the rather notice, because where it occurs, and where the accoucheur is not in full possession of the confidence of the family, it leads sometimes to an ill-grounded suspicion, that the cranium has been laid open. Recollect that this is nothing more than a particular variety of monstrosity on the whole not unfrequent. Within the circle of my own obstetric acquaintance, four or five examples of this brainless monster have occurred, and in two instances gave rise to unpleasant and unjust surmises.

PRESENTATION AND SITUATION.

Before I enter on the next important topic, I mean the passage of the full-grown fœtus through the pelvis, it may not be amiss that I should explain the meaning of two obstetric terms of frequent use — presentation and situation. By *presentation*, the accoucheur, accurate in his language, understands that part of the child which is lying over the centre of the pelvis. Thus the arms, the face, the breech, the legs, and so on, constitute the presentation, when lying successively over the centre of the pelvis. By the *situation* of the child, when speaking of its passage through the pelvis, we mean its place with respect to the surrounding bones. Thus the vertex of the child presenting, one ear is situated on the symphysis pubis and the other on the sacrum; — the face on one side of the pelvis, and the occiput on the other. Again, the arm presenting; the head is situated on the one os innominatum, the body on the other; the abdomen in front, and the back in the posterior part of the uterus. To drop a more extended exemplification, in the accuracy of obstetric language, by presentation we mean that part of the child which is lying over the centre of the pelvis; by situation, the place which the child holds with respect to surrounding bones.

LECTURE VI.

MODES IN WHICH THE CHILD IS TRANSMITTED THROUGH THE PELVIS.

The fœtus may pass the pelvis, or attempt a passage, under *four* different presentations, and four different presentations only; — the presentations I mean are those of the *head*, of the *feet*, of the *breech*, and those in which the child is lying across the pelvis. Under one or other of those general presentations, cephalic, natal, crural, or transverse, the passage of the pelvis must be accomplished or attempted.

Of all the presentations, the cephalic are decidedly the most common; and of the parts of the head, that which presents most frequently and forms the presentation in all ordinary labours, is the *vertex*, or that part of the summit around which the hair is curvilinearly ranged.

VERTEX PRESENTATION.

When the vertex presents in an ordinary labour, we find in the commencement of parturition, that the face is lying upon the

sacro-iliac synchondrosis, the occiput on the acetabulum, the chin upon the chest, and in this position the head descends with facility. In consequence of the face lying in this manner towards the one, and the occiput towards the other side of the pelvis, the long length of the head stretching from before backward, is in correspondence with the long diameter of the brim, which reaches from side to side, the two diameters agreeing with each other. If the face lie forward the head will not descend with equal facility, the long diameter of the head being opposed to the short diameter of the brim. From the natural situation, therefore, evident advantage is derived, the face lying towards the sacro-iliac synchondrosis and the occiput being opposed to the acetabulum, the long diameters correspond.

In a natural labour, the vertex presenting, we further find the chin depressed upon the chest, so that the two parts are brought into contact with each other. The chin thus placed upon the thorax, the occiput descends, and you bring the shortest of the three long diameters, or axes of the head, — which is stretching between the upper part of the forehead and lower part of the occiput, — to bear upon the long diameter of the brim; a great deal of clear space, into which the whole mass of my fingers may be passed, being retained in this manner on the side of the pelvis. If the chin be separated from the chest, so that the longest of the three diameters of the head, namely, that stretching between the chin and the vertex, is made to correspond with the long diameter of the superior aperture, a larger space is occupied in consequence, and the brim becomes full. We find, on examination, that in this natural position of the head, the cranium lies in fact in that exact situation which, of all others, is the most favourable for transmission through the brim, the chin being brought upon the chest, the face upon the synchondrosis, and the occiput upon the acetabulum; under these favourable positions room is obtained, and the head of the fœtus readily descends.

When the head reaches the outlet of the pelvis, we find it emerging under the following situation: the vertex presenting, the occiput lies out under the arch of the pubes, the face and forehead are deposited in the hollow of the sacrum, and the sagittal suture stretches along the *perineum*, or that portion of the softer parts interposed between the *genital fissure* and the *anus*. If you examine this position of the head at the outlet in comparison with those properties of the inferior aperture formerly explained, you will see that nature, in an ordinary labour, places the head in the position most favourable for passage. The face and forehead lying in the hollow of the sacrum, the occiput lying out under the arch of the pubes, the long diameter of the head accords with the long diameter of the outlet; for the long diameter of the outlet lies between the pubes and the coccyx, whence arises great facility to the passage of the head. If the face had been to the one and the

occiput to the other side, difficulty must have arisen, for the long length of the head would have been opposed to the short length of the outlet, and the passage would have been thereby obstructed; it is clear, therefore, that when the head passes into the pelvis under the vertex presentation, a turn is accomplished, pre-eminently called THE *turn*,— and by this the occiput, in the first part of labour on the side of the pelvis, is carried forward under the arch of the pubes. Suddenly the occiput may start forward into this position, but more frequently it turns gradually, so that unless you are continually examining, you may scarcely know when the evolution is effected.

Under presentation of the vertex, the face of the fœtus may lie on the symphysis pubis all through the labour, and in consequence of this unfavourable position, no small danger may arise; the mother herself not unfrequently suffers, and the fœtus often dies. When the vertex presenting the face lies forward in this manner through the labour in the passage of the superior aperture, considerable difficulty may be occasioned, the long diameter of the head being opposed to the short diameter of the brim. If the head be large, or the pelvis small, it cannot be transmitted through the aperture; and even when the head is smaller and the pelvis more capacious, the chin of the child lying on the chest, so that, of the three long diameters, the shortest is opposed to the short diameter of the brim, it is not without strong uterine effort and many pains that the descent is effected, and the bladder, rectum, and vagina, are all liable to suffer from the severe pressure to which they are subjected; besides the face lying forward, no part of the head lies out under the arch of the pubes, as in ordinary labour, nor does the occiput lodge itself in the hollow of the sacrum, without loss of room. Observe, moreover, when the head emerges, that on the rectum and perineum, the occiput must bear most forcibly, and in those cases, especially in which instruments are unskilfully employed, contusions, lacerations, and sloughings will not improbably be produced. To which we may add, that occasioning so much compression, the head is itself forcibly compressed, the fœtus not uncommonly perishing in consequence of cerebral contusion.

Important as this case is, I shall describe the different parts of it again in the way of brief recapitulation. The vertex presenting, and the face lying forward throughout the labour, there is difficulty at the brim, because the greatest length of the head does not correspond with the greatest length of the aperture; the head, however, being frequently forced down by the strength of the pains, but not without much suffering from resistance and pressure. Further, the vertex presenting and the face lying forward, there is great difficulty at the outlet, arising from three causes; first, because no part of the head lies under the arch of the pubes; secondly, because the occiput does not fit in, nor commodiously adapt itself to the hollow of the sacrum; and thirdly, and very

principally, because the back part of the head or occiput is making so much pressure on the perineum and rectum, that it occasions bruising, laceration, and sloughing.

It seems, then, that where the face throughout the labour is lying forward on the symphysis, many difficulties are occasioned; what is it that the accoucheur can do in order to diminish, surmount, or remove them? What is there that he can with prudence do, without committing the unpardonable sin of midwifery, the sin of those obstetric reprobates, the meddlesome and the pragmatic! That turning the child is universally unjustifiable when the case is indisputable, the dexterity great, and circumstances conducive, I will not venture to assert. When the softer parts are lax, the pelvis capacious, and our dexterity from long practice such that we can introduce the hand into the cavity of the uterus, and lay hold of the child's legs, and bring it away with facility, by the operation of turning, I will not say that under such circumstances we may not now and then be justified in making the attempt. By this operation we clear ourselves of the malposition of the head, the vertex becoming changed into the crural presentation. Decidedly, however, and in the strongest language I can use, I would reprobate this turning as a general practice in these cases, because you will be tearing the womb or pulling the head from the body. Remember that until you acquire the dexterous use of the fingers, you must frequently be deceived when endeavouring to ascertain the situation. Often you might fancy the child's face is forward, when it is not; often, if you were to make a practice of turning, you would perform the operation without need, and when, perhaps, the child's head was lying in the position most favourable for parturition.

If the softer parts are lax, the pelvis large, and the fingers dexterous, I will not assert that you may not be justified in doing what I sometimes have done, I mean rectifying position. Finding that the face of the child is forward, that the head is above the brim, that the passages are relaxed and capacious, you may put your hand into the uterus, you may lay hold of the head, as you would lay hold of any other body; and you may gently place the head with the face in the side of the pelvis; all this, I say, may be done, may be commended, perhaps, sometimes — but beware lest you rashly contuse or lacerate the softer parts. So, if it be clearly ascertained that the face of the fœtus is lying on the symphysis, when experience and practice are not wanting, if you have a pair of forceps, or a lever, you may endeavour to rectify the position with these instruments, proceeding, however, cautiously and with reflection, remembering that you are operating upon the softer sex; then having secured the cranium by means of one or other of these instruments, when the head is at the brim, you may lay the face on the side of the pelvis, and when it reaches the outlet, you may deposit it in the sacrum behind.

There is yet another practice proposed by Dr. Clark, and which

seems to be excellently adapted to cases of this kind, recommending itself to our attention by its ease and safety. When the face lies forward and the head is descending into the cavity of the pelvis, you may lay two fingers on the cheek, and pressing gently when the womb is in action, you may gradually transfer the face from the front to the back of the pelvis, gaining a little progress with every pain, and this, too, without injury to the delicate structure of the female, unless turbulence and violence unfit you for the duties of an accoucheur. To recapitulate, — in those cases in which the vertex presenting the face is on the symphysis, we may sometimes, though very rarely, attempt to turn the fœtus by the feet, or sometimes when the head is above the brim, we may effect the rectification by the hand, forceps, or lever; or sometimes, lastly, and most securely, by laying the two fingers on the cheek, and gradually with every pain bringing the face towards the side, and ultimately into the hollow of the sacrum, a rectification of the unfavourable situation may not unfrequently be accomplished.

But what is to be done, should neither the rectification of the situation of the head, nor the turning of the child, be deemed the proper practice? You cannot rectify perhaps: to turn the fœtus is impossible. In cases like these, the general rule should be your guide: first, give a fair trial to the natural efforts, which the wise accoucheur who has seen much and thought much, never hastily distrusts. If, therefore, no dangerous symptoms manifest themselves, let the womb act powerfully for four-and-twenty hours after the discharge of the liquor amnii, and notwithstanding its unfavourable position, the head will frequently descend. But if dangerous symptoms appear, the bladder becoming obstructed, the parts about the neck of the womb inflaming, the pulse rising in frequency, and remaining between the pains at 125 or more in the minute; or, if independently of these or other symptoms the womb have been in strong action for twenty-four hours, the head not advancing —with *tenderness* and *prudence* the lever or forceps might be tried; or, lastly, should these instruments be unavailing, or should symptoms of danger manifest themselves, (to be effectually relieved by delivery only,) or even independently of such symptoms, should the head make little or no progress, though the womb have been in action after the discharge of the liquor for six-and-thirty, or eight-and-forty hours, compelled by an inexorable necessity, you must have recourse to the perforator, your reluctance being somewhat diminished by the recollection that, under such circumstances, the fœtus, even when unopened, is generally born dead. In every labour attended with difficulties or dangers, there must be need for the exercise of a corresponding discretion; by individual contingencies general rules must be modified, but adhering to the directions which I now prescribe, you cannot wander far from the correct line of practice.

To conclude, then, with a summary: when the vertex presenting, the face lies forward throughout the labour, and this is ascertained;

in some cases you may turn, though with a trembling hand; in some cases you may rectify, always justified in trying that simple method of rectification, by lateral pressure with the fingers, as before mentioned. In the majority of cases, and especially if you are as yet inexperienced in the practice of midwifery, you may trust with confidence to the natural efforts; these failing, you may have recourse to the lever or the forceps; and these not availing, to the perforator. Under the best management, (unless you can rectify,) these are bad cases, as the bruising, lacerating, sloughing of the parts, and the death of the child, are to be apprehended.

FACE PRESENTATION.

When the head of the child presents, you sometimes have the face lying over the centre of the pelvis, the chin usually lying on one side of the pelvis, and the vertex on the other, so that the greater lengths of the head and the superior aperture reciprocally correspond. Under the efforts of the uterus, the face presenting, the head is gradually worked down, and at last we find it lying in the outlet of the pelvis; the chin, at this time, usually taking its situation under the arch of the pubes, and the vertex and occiput in the hollow of the sacrum and coccyx, and upon the perineum; the child, when about to emerge, lying with the ears on the side of the pelvis, the chin under the arch, and the occiput and vertex in the hollow of the sacrum and perineum. The head advanced thus far by a continuance of the pains, and the occiput being gradually rolled out from the hollow of the sacrum, the head is pushed into the world, the perineum and all the softer parts being stretched dreadfully, so that there is great danger of laceration, especially if you accelerate the escape of the occiput by the use of the lever or the forceps. I will suppose that you are called to a case in which the face is presenting. What is to be done? must you meddle? must you use instruments? must you turn the child? Now, in face presentation, as in the case already described, in which you have a presentation of the vertex, the face lying forward throughout the labour, I do allow that in occasional and exceptional instances, when the pelvis is large and the softer parts are lax, the accoucheur, skilful and confident, and above all, judicious, may carry the hand into the uterine cavity, and bring the child away by the operation of turning, laying hold of the feet as before described, and abstracting it under the crural presentation. As an *exception* to a general rule, this method of delivery may be proper enough; but observe, as a general rule of practice in face cases, with the whole weight of authority which I may possess, I condemn it. Do it ninety-nine times, and successfully, and I condemn it still; because your are meddling, because you are cramming your hand into the uterus without any sufficient cause; because you are, as it were, doing your best to tear the vagina;

because ninety-nine operations undeservedly successful may lead to the hundredth, and the destruction of your patient. It is the same with respect to *rectification ;* if you find the pelvis large, the softer parts lax, and your fingers very adroit, under such circumstances you may venture to introduce the hand for the purpose of rectifying the position of the head, an operation sometimes perhaps accomplished with facility, while the head lies at the brim. In these cases, with the fingers or lever, you may make that which was facial, a vertex presentation. But understand again clearly, that this is an exception from a general principle — a practice unfit for the novice, though conceded occasionally to the adroit and experienced accoucheur. In presentations of the face, the stoical rule will apply ; a rule which might with advantage be whispered into the ear at all times, when you are at the bed-side — *naturam sequere;* delivery is a natural process, give therefore a fair trial to the natural efforts. When you find a face case, frequently, nay generally, you have little to do ; you need not send for another practitioner ; you need not allow your minds to get into a state of perturbation. You have only to sit quietly at the bed-side, to support the confidence of the woman, to let the uterus act, to protect the perineum, to open your hands and receive the child which nature deposits in them. If the head be large, or the pelvis small, it may be in this, as in the vertex presentation, that the natural efforts fail ; and in such cases you may try the lever or the forceps, but with gentleness, with caution, as on your dearest friend, careful lest you occasion a laceration or sloughing of the softer parts ; and these instruments failing, should delivery be peremptorily requisite, you must then lay open the forehead, and discharge the contents of the cranium, when the head will readily descend.

FOREHEAD PRESENTATION.

Under presentations of the head, we sometimes find the forehead instead of the face lying over the centre of the pelvis. This presentation, made out in the way hereafter described, by a careful examination, can rarely occasion much difficulty ; for after there have been a few pains, the head turning somewhat, the vertex or the face descends, the case being afterwards managed by rules already prescribed. Ear presentations also occur, but they are so rare or so easily conducted on the principles already laid down, that I consider it unnecessary to enlarge on them.

FOOT OR CRURAL PRESENTATION.

By the Gallic accoucheurs, the crural or foot presentation is divided into no fewer than six varieties, in practice conveniently reduced to two kinds only, those in which the abdomen is lying *anteriorly* more or less, and those in which it is placed on the

back of the mother, whether it bear a little to the right or left, or fall directly on the promontory of the sacrum.

Of all the crural presentations, the easiest and most simple is that in which we find the abdomen of the child lying towards the back of the mother. In cases of this kind, the mode in which the child passes the pelvis is this: under the strong action of the womb, the legs are gradually pushed beyond the outlet of the pelvis, when the thighs coming within reach, the accoucheur lays hold of them, a napkin being interposed in order to render the hold more secure. The thighs grasped, he next draws down in the axis of the pelvis, which stretches downward and backward at the brim; careful not to lacerate or bruise the parts, and swaying the fœtus from side to side or a little backward and forward, as the motion one way or other may most facilitate the delivery. If the pains are frequent, the accoucheur co-operates with the pains, but if the pains are unfrequent or wanting, he draws notwithstanding; for when the delivery is once begun, and the *umbilical cord* is brought down so as to be compressed between the fœtus and the vagina, delivery should be promptly accomplished, because when there is much and continual pressure on the cord, the child dies. In cases of this kind, when the breach is passing, take care that you do not lacerate the perineum. When the breach is abstracted, the abdomen begins to appear: lay hold of the umbilical cord and draw it forth a little, so as to prevent extension during the further abstraction of the child. When the thorax begins to descend, lay your finger in the side of the pelvis; and if you find, on examination, that an arm be disposed to come down, draw it out at full length, and lay it along the side, so as to prevent it from starting at an angle, and lodging against the brim of the pelvis. In general the arms do not descend by the side of the thorax, so as to demand this manœuvre. When the axillæ are approaching the external parts, a precaution of no small importance becomes requisite; I mean preventing the arms from taking place behind the occiput, and from becoming impacted between the front of the pelvis and the head, so as to render extraction impracticable. To prevent this accident, prudence requires, that when the arm-pits approach the inferior aperture, you pass up the fingers, so as to get a bearing on the arms, and throw them as much as may be upon the back of the pelvis towards the face of the child; and with these precautions, the axillæ of the child being brought down to a level with the external parts, the body of the fœtus being thrown out of the way, and into such position as shall favour the descent of the arm, putting all the fingers, if practicable, about the bend of the elbow, and sweeping the arms in succession over the cheek, you disengage them from the cavity of the pelvis. When the arms are drawn forth, the head usually descends without further difficulty, more especially if the cranium be small, or the pelvis capacious; but should difficulties arise, you may endeavour to throw the face and occiput at the brim, on the

sides of the pelvis respectively, so that the greatest lengths of the head and the aperture may correspond with each other; and then, bearing the head towards the symphysis pubis, yet drawing on the whole in the axis of the brim, on a line stretching from the navel to the point of the coccyx, you cause the head to come down. The head descending in this manner, when it reaches the outlet of the pelvis, put the face into the hollow of the sacrum, and the occiput on the symphysis pubis, and then drawing downward and forward, careful not to lacerate the perineum, you complete the delivery.

Now all this, on account of its importance, I describe afresh. The feet presenting, you suffer the womb to act till the thighs are lying forth in the outlet of the pelvis; then gently grasping the legs, you sway the body a little from side to side, or from before backward, careful that the genital fissure sustain no injury. When the breech passes, draw forth a little the umbilical cord, so as to prevent its extension during the subsequent descent of the child. When the thorax approaches, cautiously, tenderly, yet effectually, pass the finger into the side of the pelvis, and if the arm on either side be descending, extend it, and lay it at length on the side of the trunk. When the axillæ begin to enter the interior part of the pelvis, be very careful, as they come forward, to press the arms toward the promontory of the sacrum, preventing their impaction between the head and the pubes, and in this manner facilitating their subsequent descent. The axillæ reaching the outlet, throw the body into the position most conducive to the descent of the arm; placing three or four fingers about the bend of the elbow, and in succession swaying the arms downward with a sweep over the face. Afterwards, abstracting the head with due attention to its position, guarding the perineum, and indeed taking care that the whole operation be conducted with that degree of force only which may inflict no violence on the mother or her child. *Vis consilii expers mole ruit suâ.* Contusion, lacerations, sloughings, decapitation, dislocation, fractures — these are the dreadful evils to which brute force may give rise.

Under the crural presentation, the abdomen of the child is sometimes situated anteriorly, the case being just the converse of the preceding. When the abdomen, as examination shows, is situated on the front of the pelvis, there are *two* modes in which the child may be extracted, though not with equal facility: first, we may draw down the feet as before, and the axillæ being brought to a level with the outlet, we may extricate the arms by throwing the body thoroughly out of the way, getting the fingers into the bend of the elbow, and sweeping the arm out of the pelvis, over the face of the child, behind the symphysis. Although, however, the child may be abstracted in this manner, you will find there is a difficulty in the abstraction of the arms especially. This being the case, it is wise to throw the abdomen of the child to the back

of the mother, and by laying hold of the thighs with the left hand, and spreading on the back of the fœtus the fingers of the right, you may sometimes transfer the abdomen to the posterior surface of the womb and vagina, when you produce a foot case with the abdomen seated posteriorly, to be managed by the rules already given. To make this change of situation, little skill may be required; but there is one point of nice determination, I mean the selection of the proper moment for performing the operation; for before the turn is made, you may, if you please, draw the head and arms into the pelvis; you may, if you please, impact them there, and you may, if you please, unwisely attempt to make the turn, when you have unwisely made the operation impracticable. But to proceed: "*incidit in Scyllam qui vult evitare Charybdim :*" — in avoiding this error, you may fall into the other extreme; you may attempt to place the abdomen on the back, when only the tips of the feet are lying within reach, a practice unadvisable, as the turn, though accomplishable, must be effected with difficulty, seeing that a force applied to the ankles will not readily act upon the head and shoulders above. What, then, is to be done? On the whole, I think the best time for performing the operation is when the thighs make their appearance; for in grasping them, you may get command over the body and other parts, the head and shoulders still lying above the bones of the pelvis, and of course not being impacted in the brim. It seems, then, that under crural presentations, it becomes the office of the accoucheur to co-operate by drawing down the child; but there still remains a question, what is the proper moment at which the co-operation should be given? And here I may state to you a maxim of midwifery, on which, hereafter, I shall frequently lay stress; I mean, that in selecting the proper time of giving assistance, the accoucheur often shows his judgment, more than in the execution of the manual operation itself. The manual operations of midwifery are sometimes sufficiently easy, but much nice discrimination is required to seize the moment at which those operations should be performed. Let us suppose, for instance, a foot presentation, a first delivery, the parts rigid, the head large, the pelvis small; laying hold of the legs without reflection, you advance the child without difficulty, till the thorax enter the pelvis; but mark the result — in consequence of not selecting for your operations the proper moment, you find yourself, if I may be allowed the expression, on the horns of a dilemma; the legs have descended easily enough, the abdomen too has opposed but little difficulty, but the head and shoulders will not pass. If anxious to avoid the laceration of the mother, you wait for a relaxation of the softer parts, the child lying with the legs in the world, and the head and thorax in the pelvis, its life becomes the sacrifice; pressure on the umbilical cord occasioning a suffocation, probably as painful as the death of the felon who perishes by the rope. On the other hand, if desirous to preserve the fœtus, you

draw down without delay, you lacerate and bruise the softer parts of the mother, so that by giving assistance at an improper moment, you endanger at once both the parent and her offspring. Aware of the risk, practitioners have endeavoured to lay down plain rules, which may enable us to decide when we ought and when we ought not to interfere; and there are some who, not without reason, take their indication from the laxity of the parts and the expansion of the os uteri; and if on examination they find that the parts are lax, and that the dilated os uteri is as broad as the disc of a crown-piece, they commence the delivery, refraining from manual operations if the parts are rigid, or if the mouth of the womb be shut. There are others again, as Denman for example, who ascertain the moment of interference by the descent of the child. If the breech is at the outlet, they deliver, and if it lie at the brim, they wait; the cord is not under pressure; the life of the fœtus is not in danger; a meddlesome midwifery is bad, and there is as yet no need for accelerating the birth. There are other practitioners, who judge by a rule which, if of easy application, would perhaps be preferable to the former, and this rule is taken from the state of the umbilical cord. If the cord be pulsating strongly, they let labour proceed without interfering, considering that there is no danger of suffocation, as the fœtal heart is in full play; but if the pulsation in the cord be weakened or suspended, they endeavour to abstract the fœtus as promptly as may be, unless they believe it to be lost beyond recovery.

For myself, I am accustomed in practice to combine these rules, and to act under the influence of all three. With me, of course, it is a maxim *never* to deliver while the softer parts are rigid and the os uteri is little expanded; but if the softer parts are relaxed thoroughly, and the disc of the os uteri exceed that of a crown-piece, I deem myself so far justified in assisting the delivery. But this is not all: although the softer parts are yielding, and the os uteri dilated, under the impression that meddling is wrong, and that the natural powers are great, I give a fair trial to the natural efforts, waiting, as Denman advises, till the breech is pushed down upon the outlet, and the cord becomes compressed; and then, finding the breech in the outlet and the softer parts relaxed, I proceed with the delivery, not neglecting the examination of the cord, advancing more rapidly if the pulse fall, and in a more slow and gradual manner if the firm beat of the cord indicate that the child is secure, always bearing in mind another axiom of British midwifery, I mean, that the life of the child is invariably to be sacrificed to the security of the parent, and never accelerating the birth more than the softer parts will bear.

LECTURE VII.

MANNER IN WHICH THE FŒTUS PASSES.

BREECH PRESENTATION.

When the breech of the child is lying over the centre of the pelvis, — the abdomen and legs may be variously situated, in front, behind, to the one or the other side, obliquely, backward, and forward, and so on: and thus we may, if we are fond of minute divisions, produce a great variety of cases. In a view to practice, however, (the grand object which we keep continually in view in these lectures,) the presentations of the breech may be commodiously enough divided into *two* leading sorts or kinds; those, I mean, in which the abdomen of the child, as in the crural presentations, is lying *posteriorly*, that is, on the back of the mother, and those cases in which it is lying more or less in *front*. If you understand thoroughly the principles on which these two varieties of the breech presentation should be managed, all the intermediate cases may be conducted with great ease.

First, then, of the presentation of the breech, in which the abdomen of the child is lying more or less on the back of the mother. When the vertex of the child presents, I have observed already, that large as the head is, in natural labour it is easily expelled by the spontaneous and unaided efforts of the womb; and thus it is with the presentations of the breech. It does not follow, because you find the breech presenting, that therefore the case is difficult, that further obstetrical assistance is requisite, that manual interference is requisite in order to secure the descent. In general, by the unaided efforts of the uterus, the nates will be gradually pushed to the external parts, in the same manner as in ordinary labours the head is pushed down into the outlet; and to these efforts we ought to trust. When in this manner the breech is gradually descended, so that it lies at the outlet, you may then lay your finger upon the one side, and your thumb upon the other, and without violence, (a brutal error, always to be reprobated,) with gentleness and firmness, co-operating with the pains if there be any, you may draw, throwing the body a little from side to side; often assiduously, solicitously examining the perineum, that portion of the skin which is lying between the anus and the genital fissure, lest in drawing the nates this part should be torn. Advancing the breech in this manner, and as the part descends, carrying the back of the child towards the abdomen of the parent, you find the legs spontaneously drop forth; —what was a breech, becoming of consequence a foot presentation, to be managed afterwards by the rules prescribed in the last lecture.

To repeat: in breech presentation, the belly of the child lying on the back of the mother, the natural efforts push the nates to the outlet; it may be in a few hours, it may be in a few minutes, the length of the time depending upon the capacity of the pelvis, the size of the fœtus, and the laxity of the softer parts. The breech reaching the outlet, you lay your fingers on the one, and your thumb on the other side, and solicitously guarding the perineum, co-operating with the pains if there are any, and now and then feeling the umbilical cord, which lies between the thighs, — you draw, remembering that you are operating on the softer sex, proceeding with gentleness, and not with violence; *arte, non vi*, like *men*, and not like *brutes*.

It will sometimes happen, as observed already, that the breech presenting, the abdomen of the child may lie forward throughout the labour. Aware that under breech presentation, the abdomen lying anteriorly, the natural efforts, if fairly tried, will commonly push the nates to the outlet; to these you ought generally to trust, though it must be admitted, that the part does not quite so speedily descend in this case; the nates then being pushed down upon the external parts, you may, as before, lay the fingers on the one, and the thumb on the other hip, and swaying the child a little from side to side, and co-operating with the pains, you may draw down with gentleness, suffering the legs to drop forth of themselves. If, indeed, you wish to fracture the legs, you may do this with facility; put your fingers on the middle of the thigh-bones, give a pull with the sympathetic gentleness of a brewer's dray-horse, and you will break them easily enough, for at this period the bones are very fragile. But, as I presume you have no wish to do this, you had better draw forth as recommended, suffering the legs to escape spontaneously. Dr. Lowder was requested to see a woman labouring under presentation of the nates, the labour being difficult, because the breech was large and the pelvis small. The action of the womb being powerful, however, the breech was pushed to the outlet of the pelvis, and the accoucheur laying hold of the hips, assisted a little with his characteristic gentleness, but suffered the legs to drop forth of themselves. To this case a midwife had been called — a woman; and after the doctor had brought away the child, she went up to it, examined the thighs, and turning round with surprise, exclaimed, 'Why you have not broken the thighs!' 'No,' said the doctor, 'why should I? — I should not like to have my own thighs broken, and why should I break the child's?' 'Why,' said she, '*I always break the thighs?*' And this operation she achieved by pulling them violently in the manner described.

Let, then, the natural efforts bring the breech to the outlet of the pelvis, then lay hold of the hips; draw down, carefully guarding the perineum, suffering the legs of their own accord to come forth, or at all events soliciting them with the utmost gentleness, only taking care lest the bones be fractured; after which, the

legs being expelled, you obtain a foot presentation, to be managed by the rules already prescribed.

There is, however, a second mode in which you may advantageously manage this case where the nates present, and the abdomen of the child is lying on the abdomen of the mother; and that is by rectifying the position, which may be accomplished in three modes. You may carry your hand into the pelvis when the child is at the brim, and turn the abdomen on the back: or if the breech present, the abdomen lying forward, you may wait till the natural efforts have pushed the child to the outlet, and then slowly, and not without difficulty, you may make the turn; or, lastly, you may delay till the legs have dropped forth, and then you may rectify the position, *arte*, *non vi*, provided all this can be accomplished without violence.

Now it certainly is desirable, that the fœtal abdomen should lie on the back of the mother in these cases, more especially before you attempt the extraction of the shoulders and head; because you will find the head, arms, and shoulders come away more easily when the abdomen is lying this way, than when placed anteriorly; and I should therefore recommend you, as a general practice, to turn the abdomen on the back.

There are three occasions in which you may accomplish this; when the legs drop forth — when the breech is down at the outlet — and when the breech is at the brim. But, on the whole, I would dissuade you from making the turn when the breech is at the brim; for, to make this evolution then, you must carry your hand into the pelvis, an operation never justifiable, unless the necessity be inexorable; since in doing it, you may lacerate, contuse, and kill. It is better to wait till the breech is pushed down upon the outlet, when you may attempt the turn; or should you fail in your attempts to turn when the breech is at the outlet, you may wait till the legs are escaped, when you may endeavour to accomplish it by grasping the hips with one hand, and spreading the other on the back, effecting the necessary movement by the co-operation of the two.

Under breech presentation, if you give a fair trial to the natural efforts, in most instances the fœtus of itself descends to the outlet, the accoucheur happily having little to do, except to sit at the bed-side and abstain from injury or mischief. However, as the natural efforts are now and then insufficient to push the head to the outlet, so also, when the breech is large and the pelvis small, they are sometimes insufficient to expel the nates, so that artificial assistance is necessary. The methods of assisting in breech presentations, when necessary, are the following: in the first place, you may put your finger into the bend of the thigh, acting as with a hook, and drawing down with the finger in this manner on either side alternately, co-operating with the pains, you will find that you can draw with great effect, the uterus actively assisting. Should you not have power enough to draw with

effect in this manner, you may then, taking two handkerchiefs, put one over the bend of either thigh; and laying the handkerchief neatly into the fold formed by the thigh and abdomen, so as to get an even bearing upon all the parts, you acquire a hold at once firm and safe, and may extract with much effect. In cases of this kind you may give assistance by means of a *blunt hook;* an instrument to which I am myself exceedingly averse, as, like the finger of a rude accoucheur, it has no feeling for the mother or child. Using this method, you employ this hook of *iron,* which may at times be tried with considerable advantage, and sliding the finger into the fold, conducting the instrument by the finger, you plant the hook on the bend of the thigh, so that the curve has a general bearing upon the parts, the instrument not resting on its point. Remember, in using this instrument, that force will produce terrible effects, and you may occasion sloughing, or may cripple the child for life; or (which is scarcely a greater evil) you may destroy it. There is yet another mode in which you may assist the descent of the breech, and which I think worth your knowing, though I do not recommend it to general practice; — and that is by the use of the forceps. Nor am I deterred from the forceps by the alarms of Capuron, who asserts, the use of the instrument in this case to be *toujours dangereux si non meurtrier pour l'enfant.* He thinks you may bruise the sides and viscera of the abdomen by the application of the forceps to the breech, and so you may if you use force; but force is to be exploded from midwifery. If you lay hold of the hips with the forceps, you may grasp with gentleness, and if the parts slip from the instrument again and again, so much the better, for that shows you are not using a force too great, and to replace them is easy. If they come away six times, apply them seven, and persevering *paulatim,* by little and little, you may at length bring the nates to the outlet. Assisting, then, in one or other of these modes, by the finger, the handkerchief, the blunt hook, or the forceps, even in the more difficult cases, the breech may be made to descend; yet not universally, for sometimes there is so much narrowness of the pelvis, at the brim especially, that under breech presentation the fœtus cannot descend at all. Now, in a vertex case, where the head could not be expelled, you would lay open the cranium; an operation this, which cannot be performed on the presentation of the nates. What then is to be done? Why, to introduce the hand, to lay hold of the child's legs, and instead of the breech, to draw down the feet, is perhaps the only practice that remains, and in this manner, the difficulty may be easily removed. And here, perhaps, some one may be disposed to say, mentally, "That thought I like; that method I would always adopt in breech presentations; it gives me a command over the child." Is this your determination — this your intended practice? Then give me leave to tell you that you are wrong: and you are wrong because you are meddlesome; because, in so doing, you might rupture the

vagina and uterus; and because, in so doing, you have less chance of abstracting the fœtus alive; for it is worth observation, that *more* children are born alive under presentation of the *breech* than of the *feet*, for under the breech presentation a groove is formed between the abdomen and thighs, where the umbilical cord sometimes lodges, protected from any pressure that occasions that interruption of the circulation to which it is liable in the crural presentations, where the cord lies naked and undefended.

Thus much, then, respecting the management of the breech presentations; into the consideration of them I have entered at length, for they are cases by no means unfrequent in their occurrence. When the breech presents, you are not pragmatically to interfere; the natural efforts commonly push the fœtus to the outlet; the natural efforts failing, you have recourse to the finger, the handkerchief, the blunt hook, or the forceps. It rarely becomes necessary to bring down the feet by the hand, but the necessity existing, you proceed in the modes recommended.

TRANSVERSE PRESENTATION.

When neither the superior nor inferior extremity of the child presents, the fœtus is said to lie *across* the pelvis. Under the presentation of the *arm*, of the *shoulder*, of the *back*, of the *hip*, of the *abdomen*, of the *chest*, you have so many transverse positions of the fœtus; and those cases, although they differ somewhat as to the presentations, are all conducted essentially on the same general principle, whence the subject becomes greatly simplified; for if you thoroughly understand the principle of management in one of those cases, you can apply it to them all. Of all the various transverse presentations by far the most common and most difficult is that of the arm or shoulder, of which, indeed, you must frequently hear mention; and therefore, without bewildering you by entering into the consideration of all the varieties of transverse presentations which occur, and which I have seen, I shall confine myself solely to the *presentation of the arm*.

When the arm of the child presents, provided the woman have reached the full time of gestation, you cannot, in this position, abstract the child. If with ferocious ignorance you lay hold of the arm and pull (the fœtus being of the full size), torturing the innocent child like Damien the assassin, you break, you tear it limb from limb. But if the fœtus be under the age of six complete months, the delivery being premature, then the child is so small and so pliable, that if the pelvis be large or the pains be strong, it will pass under the shoulder presentation; yet even in these cases, it is wrong to draw the child. To illustrate all this, take a pelvis of the standard capacity, and a model of the size of nine months; under the brachial presentation, it will not pass. Take a second model, of the size of seven months; under the brachial presentation, this too cannot be transmitted; but a third model, of

the size of six months complete, under the strong efforts of the womb might be pushed away, so that this is one mode in which the transverse presentation may be transmitted without change of position.

It is worth your knowing further, that when a child is lying transversely, and more especially when it presents by the arm or shoulder, it may sometimes be expelled at the full time of pregnancy, with no exertions on the part of the accoucheur, under natural efforts, by what Denman has denominated a *spontaneous evolution;* the arm of the child ascending a little, (not much, however, as Gooch has observed,) and the breech descending into the pelvis, so that under breech presentation the child comes away. In general, unless the child be softened and relaxed by death, it can scarcely undergo that doubling in the pelvis which is necessary to allow of its coming forth in this manner. I suppose, therefore, that in nine cases out of ten, or it may be that in nineteen of twenty where evolution occurs, the fœtus is destroyed; and sorry I am to add, that as a general mode of delivery it cannot be relied on. How much is this to be regretted! Happy would it be for you, for the mother, and for the child, if under arm presentation, as under that of the nates, the fœtus might be expelled unaided by the accoucheur. Many a vagina would be saved, many a uterus hereafter to be torn would be preserved, and many a death which now must take place in the course of the next few years would be prevented! But the only cases in which I can recommend your trusting to this spontaneous evolution, are those in which you cannot effect the turning of the child in the usual way, or those in which the tendency to evolve is obvious. You make your attempts and fail, then the evolution may be properly essayed; or, perhaps, examining with care, you perceive the arm moving, or by the side of the arm the thorax or flank beginning to protrude: perceiving in this manner obvious symptoms of evolution, you say, I will not interfere here; a meddling midwifery is bad, the natural efforts being clearly engaged in effecting the evolution, I will not obstruct them. I was called, some few months ago, to a case in the neighbourhood of the London Hospital, a presentation of the arm, attended by a gentleman of some obstetric tact and talent. In two minutes after I entered the room, with scarcely a complaint on the part of the woman, the arm presenting, the child was brought away. As my predecessor had been labouring without success to deliver, this speedy abstraction of the child occasioned no small manifestation of surprise, and when we were apart, my friend asked me how it was possible I could deliver her so easily and speedily after he had laboured so much and to so little purpose. To say the truth, said I, I did not deliver her at all; for, on reaching the bed-side, I found spontaneous evolution was nearly completed, and I had only to hold forth my hands till the child dropped into them. To another case I was called, where two practitioners had tried to turn the child and failed, and where I tried myself

and failed too. Finding that perseverance would burst the uterus, let us wait, I said, to see what the natural efforts will accomplish; if they do not effect the delivery, further measures may be used, but do not let us distrust our great and kind mother too soon. In the course of an hour, the child came away under a spontaneous evolution, effected by the natural powers, and the woman did very well; and we all found that we did more service by sitting down to the dinner table than by working at the bed-side.

However clumsy, however rough, and however dangerous the practice, yet, whenever you have a presentation of the shoulder or arm, I am compelled to admit, that on the whole the best general practice is to carry the hand into the uterus, and to bring the child away by the operation of turning. The arm hanging forth, you take off your coat, remove the sleeve of the shirt, lubricate the arm, and particularly the hand, and then, *arte, non vi*, with the fear of lacerating the womb before your eyes, relentingly, tremblingly I had almost said, you carry the hand into the uterus, and draw down the feet of the child, always with the risk of tearing the genitals even when you operate in a manner the most skilful and dexterous.

I have repeatedly observed, that in ordinary labours you should be careful not to interfere too soon; but here is a kind of exception. Where you have a presentation of the shoulder and arm, and turning is obviously necessary, the sooner you operate the better; for if you delay, the womb may contract, and without using great force, turning may be impracticable. As soon, therefore, as the softer parts are relaxed, and the disc of the os uteri is as large as a crown-piece, and your hand, being small, may be carried into the uterus, without violence approach the feet, and perform the operation of turning before the water is discharged, or at all events before it has been *long* discharged; and then, in general, from my own experience I think I may say the operation may be effected easily enough.

MEANS OF ASCERTAINING THE POSITION OF THE CHILD.

Our observations on the passage of the fœtus being concluded, I now proceed to treat of the means whereby, at the bed-side, in the living woman, we may ascertain the mode in which the child is descending; for it is evident that all our speculative knowledge respecting the passage of the fœtus can avail but little in practice, unless you can at the bed-side, when called upon to attend a case, determine in what manner the fœtus is coming away.

The ancients endeavoured to make out the position of the fœtus by means of external examination. Neither would I have the modern accoucheur entirely neglect this manœuvre. Empty the bladder if necessary, that the situation of the womb may be more easily ascertained; place the woman in a recumbent position, with the shoulders and legs a little raised so as to relax somewhat the

abdominal muscles, and then carry your hand over the abdomen, in order to know the form of the womb, and, if possible, the position of the child in it.

More certainly, and with greater ease, the modern accoucheur ascertains the position *by examination:* that is, by touching those parts of the child which are lying within reach of the fingers. By this mode, when the vertex presents, it may be known from its roundness, its hardness, its sutures, its fontanels, and sometimes by a copious growth of hair. If you feel these, there can be no doubt as to the part presenting. If you make out the large fontanel, and find that it is lying to the left, then the face will be to the left; if you feel the little fontanel, and that it lies to the right, then the occiput will lie to the right; and if you feel the ear, that of course indicates the position of the child's head. But you may ask me, perhaps, How are we to know the greater and the lesser fontanel? Easily; for where the large fontanel is, there you will find *four sutures;* it is the only part of the head at which four sutures may be found; besides, it is of *rhomboidal* (*diamond*) *shape*, it is of *considerable extent*, and when tangible, therefore, easily recognised. But how are you to know the little fontanel? In general with facility, because it is of a *triangular form*, of *small extent*, and has *three sutures* concurrent. Feeling the little fontanel, therefore, of triangular shape, of small extent, with a coalition of three sutures, you know the situation of the occiput; and feeling the greater fontanel of diamond shape, of great extent, and of four concurrent sutures, you know the situation of the face. In ordinary deliveries, these nice examinations are not required, but in cases of difficulty, where help is required, these points should be ascertained if practicable, as without this knowledge a dexterous and scientific assistance cannot be administered. When the face of the child presents, you will not, I trust, confound this presentation with the breech, though the error has been committed. It is round and soft, and so far it resembles the nates; but then the *nose*, the protuberant *eyes*, and above all, the *toothless mouth*, readily known, if you have been in the habit of feeling this cavity, will enable you to distinguish the face. Feeling the eyes, nose, mouth, and forehead, you will not only be able to make out the presentation, but the situation likewise; the *ears*, when felt, further assisting your diagnosis of the position of the head. A *forehead* presentation is probably more easily than any other confounded with a vertex presentation, when you first feel it. On examining the forehead, you say to yourself, complacently enough, "Oh, this is a natural case, I shall soon get away." But when you come to examine the case again, feeling what you take to be the sagittal suture, and tracing it to the one extremity, you find there the large fontanel; and on tracing it to the other extremity, your fingers are conveyed to the eyes and nose, when the nature of the case is obvious enough, so that you find you have been congratulating yourself too soon. Where the breech of the child

presents, you will recognise this part by its roundness and softness, by the cleft between the buttocks, the genitals, the anus, and if the fœtus be a male, by the scrotum. Do not take a lancet to lay open the child's scrotum, with risk of injuring the testicles; for in these breech cases, where the child is a male, there is sometimes, I suspect, a little water lodging there; and some practitioners, thinking they feel fluctuation, may be impelled, perhaps, to tap, — a meddlesome operation, for which no necessity exists. When you have made out the breech by these indications, the roundness, the softness, the cleft between the buttocks, the scrotum, the genitals, and anus, you will be able, with little further examination, to decide whether the abdomen of the fœtus is lying on the back or front of the parent. The arm presenting, you may, if you are *omnipotent in ignorance and negligence*, confound it with the leg; and I have known this feat achieved, though with ordinary care, and under ordinary circumstances, the error is scarcely possible. *Nil mortalibus arduum est, — cœlum ipsum petimus stultitiâ.* But there is more difficulty in discovering the presentation of the shoulder; so much so, indeed, that even an experienced and good accoucheur may be deceived here. He feels a roundness and hardness, which he mistakes for the vertex; and it may require no small share of examination and discrimination to distinguish between these parts when the shoulder is altered by compression. The only way of distinguishing is by making an extensive and repeated examination, when you feel the ribs, the axilla, the arm, and the cleft between the arm and sides, by which the presentation may be pretty clearly ascertained. Under a first examination you may be easily deceived, but you must make the examination very carefully and repeatedly, as distinction is of the first importance; for if it is a vertex case, you are to do nothing; and if, on the other hand, the shoulder present, it becomes your duty to turn the child as soon as the feet may be approached. The best mode of making out the position of the child's legs in these cases, is, by examining the position of the hand. When my hand, for instance, is stretched from my side, intermediately, between supination and pronation, the palm is in the direction of the abdomen; the back, in the direction of the back; the thumb lies towards the head, and the little finger to the feet. Now, let us apply this to the case before us; and suppose that you can see only the hand of the child; if the palm is lying in front of the mother, then the abdomen must be in the front, and the legs too. The thumb lying to the left side of the pelvis, I know the head is to the left side; the little finger lying to the side of the pelvis, I know the feet are there. Knowing this, you may carry up the hand directly to the feet, and are not compelled to enter the womb at random, and to go roaming after the feet, over all the regions of the uterus, for a quarter of an hour perhaps before you find them.

In order that you may recognise the child by the parts mentioned, it is absolutely necessary that you should have been in the

habit of frequently examining those parts. Now the readiest mode of becoming familiar with the presentation is, to take every opportunity of examining children after birth; and if you do this, in the careful manner in which you ought, after having attended twenty labours, you may become better acquainted with the touch of the different parts, than the man who, in a hundred cases, has been at the bed-side like a pet lapdog, and who has examined perhaps with little more intelligence and attention. If you have a case in town, for instance, every time you call you should take the child into your hands, and examine the characters of the different presentations, — sometimes the head, with its sutures and fontanels, — sometimes the face of the child, with its eyes, nose, and mouth, — sometimes, and with equal solicitude, the other presentations, the shoulders, the back, the abdomen, and the nates. Again, in order that you may examine well and successfully, it is not only necessary that you get a thorough knowledge of the tangible parts of the child; but it is necessary further, when the examination is made, that the woman, if possible, should be lying *perfectly quiet*. In many instances, women are so irritated and inflamed, in cases of difficulty especially, that they cannot lie still. In these circumstances take away blood, foment the parts, give sixty or eighty drops of the tincture of opium, or a corresponding portion of Batley's anodyne, and, in a quarter of an hour or twenty minutes perhaps, you make the examination without disturbance. When examinations are made, the posture of the woman may be various. The ordinary obstetric position is perhaps on the whole the best. If you wish to examine with nicety, let the woman lie on the left side, close upon the edge of the bed, the abdomen facing a little downwards, the bosom thrown upon the knees, the shoulders lying forward, and the loins posteriorly, the very reverse of the position in which the stupidity of the nurses generally places them.

I would recommend you to examine with *both hands*, and with dexterity too. Nature has given you two, and why not employ them? Make the most of them you can. When learning, examine with the *right hand* as often as with the left; for there may be cases in which it is necessary to get the equal use of both sets of fingers. But, in saying this, I would add, what is not an unimportant truth, that (the woman lying in the ordinary manner) you will never examine so well with the right as with the left hand; therefore by all means learn to examine with the left. I am told by practitioners, that they can examine well enough with the right hand; but I have seen the best accoucheurs, and particularly one very able man, who has been twenty or thirty years in practice, and who has delivered far more women than I have done, or ever shall do, who could not by any possibility do that with the right hand, which I easily accomplished with the left. Where a woman was supposed to be pregnant, I put *both fingers* into the os uteri, and felt distinctly the head of the fœtus, although, after examination, he remained doubtful of the pregnancy. Now, I am

persuaded that the only reason of his failure was, that he used the right hand in his examination in place of the left. By all means, therefore, use your fingers — your fingers of both hands, but give those of the left hand a preference over those of the right; if you examine well, you may actually carry the *two first joints* of the fingers completely *above* the linea ileo-pectinea, while an awkward accoucheur scarcely reaches the brim. In ordinary cases, this is so much the better, for deep penetration is not required; but, in extraordinary difficulties, when nature calls for help, unable to ascertain the position of the child, they cannot assist her in a scientific manner.

There is another hint I would give you relating to this important operation, which is, that you are not angels, and need not, therefore, give yourselves celestial airs affecting intuition. Do not content yourselves with merely sliding the fingers a little way up into the vagina, suddenly and smilingly exclaiming, "Oh, a presentation of the vertex;" for, perchance, it may turn out to be the shoulder, the breech, or the forehead that presents, and to your very great discomfiture you find, after all, you have mere mortal knowledge — *humanum est errare.* I would advise you, in all cases where there is difficulty, to make your examinations repeatedly, slowly, and to examine every part that lies within reach. You cannot feel too carefully, if examination be really important. If you affect this intuitive mode of deciding at first touch what is the presenting part, you will be precipitate and err; but if you take pains to examine, if you insinuate the finger far, and make your examination completely, familiarizing yourselves with the touch of the different parts of the child, you will come in general to a correct conclusion. When examining, some introduce the whole hand, (a bad practice,) and some a single finger only; if you can succeed with one finger, that should be preferred; but, as a general mode, the better method is to introduce *two fingers* — the *first* and *second* of the left hand, the nails being pared and lard being applied abundantly, especially about the *knuckles.* You should, too, carry the fingers far into the pelvis. When first making the attempt, you will, perhaps, not be able to advance sufficiently, but keeping near the front, a deeper penetration may be easily accomplished.

These are the principal points to be attended to in making your examinations: first, be familiar with the feeling of the different parts of the child. In *ordinary* cases, make your examinations *carelessly*, if you please; but if you wish to examine with nicety, place the woman on her left side, close to the edge of the bed, the knees and shoulders lying forward, and the nates posteriorly. Let the parts be prepared for investigation by opiates, fomentations, and bleeding, if necessary. When learning, examine with the left or right hand fingers, — sometimes with both, — always with tenderness. Never interfere, except where it is necessary, — and

where it is necessary, carry the fingers as far up into the pelvis as may be. Do not, in dubious cases, decide hastily, from one examination only, but make your examination more than once.

LECTURE VIII.

THE SOFT PARTS IN CONNEXION WITH THE PELVIS, AND THE EFFECTS PRODUCED ON THEM BY THE PASSAGE OF THE CHILD.

With the pelvis various softer parts are connected, some of them lying externally, others contained within; and these we purpose now to consider, so far, and so far only, as they are interesting to the accoucheur, commencing with an organ of no small importance, I mean the

UTERUS.

If we examine the uterus while yet unimpregnated, we find its bulk in different women, like that of the fœtus, various, — large, however, on an average as a small pear; and it lies in the middle of the pelvis with its fundus forwards, its mouth backwards, its anterior surface directed somewhat downwards, and its posterior surface above. But making our observations on the womb, in the end of pregnancy, when it becomes a most important study, we find it very bulky, as large, for example, as the adult head, or larger. When thus enlarged by gestation, the uterus occupies about two-thirds of the abdominal cavity, still placed in the same bearings as the unimpregnated womb, the mouth of it lying downwards and backwards towards the sacrum, the fundus pushing forward beyond the xyphoid cartilage, the posterior surface still facing somewhat upwards, the anterior surface below. The abdominal muscles are spread out before it, the intestines lodge above and behind it, and the bladder, which contracting retires behind the symphysis pubis, when dilated becomes interposed between the abdominal coverings and this viscus, where, in labour, its form and fluctuation may sometimes be distinctly felt.

On laying open the uterus, we find within its cavity the egg of the human species, consisting of a full grown fœtus, an aquatic animal, immersed in water therefore, and contained in the membranous bag which I here show. Adhering to the bag or cyst is a large fleshy mass, about twice the size of a small breast; and this, connected with the fœtus by means of the umbilical cord, adheres by its convex lobular surface to the upper part of the uterine cavity, and constitutes that part so important to the accoucheur; I mean the *placenta*, which in different ova varies considerably. In the

first stage of our existence, we are placed with the head depending, this being the ordinary position of the fœtus, as that of the adult is converse.

BLADDER.

Closely connected with the *vagina* and *uterus*, and not to be overlooked by the accoucheur, is the *bladder*, a musculo-membranous receptacle of ever-varying capacity. Contracted, it contains scarcely a *drachm* of urine; dilated to its full dimensions under urinary obstruction, it becomes capable of containing from *one* to *two gallons*, not, however, without risk of laceration. With the bulk of the bladder, its *situation* is of importance; when dilated, it lodges extensively between the abdominal coverings and the uterus; when contracted it occupies but a small space, and then lies concealed, in a great measure, behind the *symphysis* in front; much exposed to pressure, of course, during the transmission of the head, more especially when the pelvis is small, or the cranium unusually bulky.

The situation of the bladder in its contracted state is as follows. When a woman is erect, the symphysis pubis lying downwards, the sacrum above the womb intermediately, and the bladder lodging between the womb and the symphysis pubis, is liable to be pressed during the passage of the head through the pelvis.

URETERS AND URETHRA.

Into the neck of the bladder, on the back part the ureters open, towards the lower part of it and the sides; in a situation best learnt from your own dissections. The urethra, arising near the lower point of the bladder in front, in length about two inches, is lying on the back part of the symphysis, where it may be readily felt, and traced by the finger,—its roundness and firmness reminding one of a piece of lay-cord; a comparison which I use, because, though coarse, it may be readily understood. At the point or key of the pubic arch, the orifice of the urethra opens, of various capacity: when large, it may admit the little finger; when contracted, it may exclude a sound; when of ordinary dimensions, it readily receives the catheter. To find the orifice is no difficult task; placing the finger in the arch of the pubes, and stirring it a little, you may discover the aperture there, though not always with equal facility, yet with the same certainty, as with closed eyes you might by the touch detect an aperture in a piece of moistened skin. Of course, during the transmission of the child through the pelvis, especially if the head be large, or the pelvis small, the urethra is more or less subjected to compression; it may be closed, therefore, or it may be pushed out of its place and distorted; or under contusion, it may become inflamed, swelled, or spasmodically contracted.

RECTUM.

On the surface of the pelvis, behind, lies a musculo-membranous receptacle of very different form from the preceding, not without its obstetric interest, — I mean the *rectum*, or lower end of the great intestine, which rests upon the sacrum, one extremity of it opening at the anus, the other into the *sigmoid flexure* of the *colon*, to the left of the sacrum. Lying in the hollow of this bone, the rectum is placed a little obliquely, a nicety of anatomy to be remembered by the surgeon as well as the accoucheur, when examination by the bougie, or any other instrument, becomes requisite. Of the rectum, the lower portion is formed merely by the mucous membrane, the muscular fibres, and a little cellular web; the upper half, or two-thirds above, being covered by peritoneum in front and in front only, for the back part lies directly in the hollow of the sacrum, a cellular web being alone interposed there. The superior extremity of the rectum opens into the sigmoid flexure of the colon; the inferior, opening at the anus, is surrounded by a broad muscle, called the *sphincter*, of various breadth, thickness, and strength, in different bodies. During a mismanaged labour, the sphincter ani is sometimes torn, the retentive power of the gut being lost, at least for a time, not without great discomfort and vexation of the patient, who is excluded by this infirmity from the social circle.

VAGINA.

In the middle of the pelvis, and in the course of the axis described, in a former lecture, the vagina of the woman is situated, a part which next deserves our attention. Originating all round from the neck of the womb, just above the mouth, which projects into it, the vagina terminates at its inferior extremity upon the genital fissure or *vulva*. This canal, from three to five inches or more in length, though various in capacity, may be capable of containing, on an average, two or three fluid ounces, and is correspondent with the male organ, in relation to which it was evidently constructed.

Placed in the axis of the pelvis, we find the vagina lies with its back on the rectum, its front on the bladder and the urethra, the upper portion being on the neck of the bladder, and the lower upon the urethra; so that laceration, or slough of the vagina, may lay open either the bladder or the rectum.

EXTERNAL ORGANS.

In connexion with the pelvis, we meet also with the external organs, as they are called, of which, in relation to delivery, we may observe, that they constitute a sort of *fissure*, properly enough

denominated the *genital;* the sides of which are formed by doublings of skin of various bulk, containing more or less adipose matter, and forming what are called the labia pudendi. Above the fissure, the mons veneris rises, an eminence covered with capillary growth, a protection during intercourse ; below, between the fleshy swelling of the lower portion of the nates, the perineum lies, extending from the genital fissure to the extremity of the rectum, consisting externally of the common integuments, and of the posterior portion of the vagina within, with a little interposed cellular web, and perhaps a few of the sphincter fibres ; the whole structure spreading by continuity to the internal and adjacent parts, and forming the front of the rectum, a part of the intestine which sometimes stretches forth when the head emerges, and gives, for the time, additional extent to this important structure. Into the composition of the vulva other parts are entering, but the knowledge of these alone, the labia pudendi, the mons veneris, and the perineum, is necessary to the comprehension and management of the close of the delivery.

BLOODVESSELS.

In the pelvis, and connected with the softer parts, we meet with bloodvessels, not to be passed in total silence, consisting of the *internal* and *external iliacs.* The external veins and arteries lying upon the sides of the false pelvis, beneath the outer margins of the psoæ muscles, while the internal iliacs, spreading over a wider surface, are deposited on the sacro-iliac synchondrosis, in the vicinity of which their pulsations may be sometimes felt.

ABBSORENTS AND GLANDS.

Accompanying the bloodvessels, as is usual, we have lymphatics and their glands, and there are some *lymphatics* with their conglobates accompanying the external iliac, and others the internal system of vessels. Into a minute consideration of the pelvic lymphatics I am not prepared to enter, for they are not of much obstetric importance. I may observe, however, that on the loins and back of the vagina, glands are seated, which, swelling sometimes, may become as large as the pullet's egg, though rarely obstructing parturition.

NERVES.

In your obstetric studies, the pelvic nerves are not to be forgotten ; the *anterior crural,* the *great sciatic,* and the *obturator,* being of capital importance. The anterior crural nerve arising from the first, second, third, and fourth lumbar, lodging as it passes through the true pelvis under the outer edge of the *psoas muscle* on either side, preserved from direct uterine pressure by

the interposition of this muscle, in conjunction with the fleshy mass, is, however, obnoxious to compression when the womb is large and ponderous. Originating from the second, third, and fourth lumbar, the trunk of the obturator nerve is found in the sides of the true pelvis, lying on the bone, perforating the upper and posterior portion of the obturator ligament, and when the head is large, the pelvis small, or instruments are used, it is susceptible of much injury. The branches of the great sciatic trunk, formed ultimately by coalition of the lower lumbar and the upper sacral nerves, are situated principally in the region of the synchondrosis; during the passage of the cranium when room is deficient, these origins of the nerves lying on the sacro-iliac synchondrosis, must be more or less exposed to compression from instruments or the head.

MUSCLES.

There are muscles in the pelvis too, which, as well as the nervous system, require notice from the obstetric student, — the *psoæ*, the *iliaci*, the *obturatores*, the *internal pyriformes*, the *levatores ani* being the principal. Into the anatomy of these muscles, however, I forbear to enter, but I advise you, by all means, in concluding your anatomical studies, to make them the subject of particular notice, as you will find the knowledge of them not without its interest to the surgeon, and still more important to the scientific accoucheur.

CELLULAR WEB.

Connecting these parts, now lying internally, we have a cellular tissue, which has its claim on your attention, as it invests those parts not covered by peritoneum, and sometimes becomes the seat of inflammation, and more rarely of a fatal suppuration. To this I may add, that by the peritoneum, the pelvic viscera are partially invested, the membrane detaching itself from the abdominal muscles below, covering the body of the urinary bladder posteriorly, lining the upper part of the uterus in front, spreading over the whole of the womb, and perhaps two-thirds of the vagina, posteriorly reflecting afterwards so as to double upon itself and extend over the rectum in front, and generally over the back of the pelvis. Under this distribution, therefore, in the human body, the whole of the cervix vesicæ, with the front of the body, the whole of the vagina in front, with the lower portion of the uterus, a small portion of the vagina behind, and the whole corresponding portion of the rectum below, together with the whole posterior part of this organ where it rests upon the sacrum, receives no investment from this abdominal membrane, these surfaces being clothed solely by a cellular web, subject to inflammation and suppuration, as before stated.

LIGAMENTS AND FALLOPIAN TUBES.

From the front of the uterus, at the extremities of the curve which bounds the fundus, the round ligaments originate, passing downwards and forwards, to issue at the abdominal rings, externally to which, beneath the common integuments, they terminate. Small in the unimpregnated genitals, they become developed by gestation, lengthening, spreading, and exhibiting marks of muscularity. Between the womb and the pelvis laterally, the broad ligaments are interposed, formed by the extension of the peritoneal covering of the uterus anteriorly and behind from the sides of the womb to the sides of the pelvis. Posterior to these ligaments it is that the ovaries are lodged, the penetralia of the human species, while the Fallopian tubes, which convey the eggs from this mysterious adytum to the uterus, are stretching along the upper edge of the broad ligament. The uterus, enlarged in the latter months, is pushing between the folds of these ligaments, which, rising with its fundus, spread over the womb laterally, in front and behind; in consequence of which, the tubes are found to take their place upon the sides, along which they lie, the ovaries also being scarcely detached from the contact of the uterus. The cervix of the bladder is spread over the vagina, cellular web alone being interposed; so that if an examination be required in front, it may be easily accomplished by laying the finger in front on the upper portion of the vagina.

EFFECTS PRODUCED ON THE SOFT PARTS BY THE PASSAGE OF THE CHILD.

When parturition occurs, effects are more or less liable to be produced in the various parts which I have been enumerating; and it may be right, before we dismiss the consideration of the softer structures, that we should enumerate and explain to you some of those effects which are the most important. When delivery occurs, there is an extensive dilatation of these parts: the *os uteri* when contracted will scarcely admit the catheter, but when dilated it becomes so widely expanded as to allow the passage of the head, and this too with facility. The *vagina*, small in its capacity, relaxes itself gently and softly under the pressure of the cranium, so as to sustain the transmission without injury, while a further softening prepares the genital fissure in such manner as to fit it for the emersion of the head. You may set down, therefore, among the effects of parturition, the softening and relaxation of the genitals, the expansion of the os uteri, the opening of the vagina, the dilation of the genital fissure, not to mention the yielding of the *levatores ani;* for the vagina passing through this muscle, of course it must yield when the head passes.

When the parts are yielding as they ought to be, and where the

first impregnation is effected at an early age, as nature intended, contusions and lacerations are rarely found to occur; but if it so happen from the customs observed in society, or from any other cause, that the first impregnation is too long delayed, then such rigidity may subsist, that if the head be large, the pelvis small, the efforts vehement, or the accoucheur officious, lacerations and contusions of the most formidable kind may be produced. Sometimes the body of the uterus, more frequently the neck, is torn. Sometimes we have lacerations of the vagina, or lacerations of the perineum, or lacerations of the back part of the cervix of the bladder, laying this part open into the vagina in a way you may readily conceive, from observing the situation of the bladder with respect to the vagina. These lacerations, as observed before, may be produced in various ways: — by the needless introduction of a rude and ignorant hand, by the officious and rough insertion of the lever or the forceps, or, when these instruments have been already introduced, by the too rapid abstraction of the head. The head is secured, the womb is acting, cheerily the accoucheur advances with the labour, comforting himself with the expectation of a speedy emersion of the child; when, in an evil moment, forgetful of the perineum, he ruptures it from end to end, and cripples his patient for the remainder of her days. Spontaneously, or without much interference on the part of the practitioner, lacerations of the genitals may occur; the parts are rigid, the pains are vehement, the practitioner is absent, or the woman starting from her position and losing his protection, the perineum yields, and suddenly the child's head bursts into the world. Against this accident you should always be prepared; but in candour it must be confessed, that laceration may occur when little blame can be attached to the accoucheur. Add to this, that the back part of the neck of the bladder may be easily torn, in a way which a little attention on your part may readily prevent. Suppose, for example, the bladder be charged with urine, to the amount of one or two pints — suppose, further, that the child's head passing the pelvis and bearing on the symphysis pubis, divides the bladder into two parts or chambers, one portion lying above the brim, the other portion below, before and beneath the head, so that it receives during transmission the full pressure of the cranium; under these circumstances, should the fœtus descend rapidly while the bladder is loaded, disruption of the cervix will pretty certainly occur.

During parturition, it happens sometimes that inflammation and suppuration of all the viscera within the pelvis are produced. When the pelvis is small, the head large, and the labour difficult, all the pelvic viscera are liable to be contused, the vagina especially. Indeed, the violence of labour considered, it really appears surprising, that inflammation of these viscera does not more frequently occur; but the Creator has wisely adapted those parts to the force they are destined to sustain. The neck of the bladder,

however, with the urethra, the rectum, and the parts adjacent, are all obnoxious to inflammation, to which the cellular web, already mentioned, is particularly exposed, matter sometimes accumulating in consequence, to the amount of six or eight ounces. A frequent pulse, a foul tongue, a heated surface, a general irritability of the system, a tenderness of the parts in the vicinity of the symphysis felt on compression, or from jarring the viscera, by striking or giving concussion to the pelvis; these are the leading characteristics by which their condition may be known. Where matter is collected, *hectic* occurs: you may have shiverings, sweatings, vomitings, purgings, wastings, and the patient may be carried off in the course of a few days; or if she be of more vigorous constitution, and in a purer atmosphere, the abscess may open and discharge its contents either into the rectum, vagina, or, perhaps, the bladder itself. In one of the last cases of suppuration brought under my notice, the patient recovering, a good deal of matter came away, apparently from the urethra, along with the urine; and I have a strong persuasion that, in this instance, the pus and urine were mingled in the cavity of the bladder, into which the abscess was presumed to open.

These inflammations and suppurations may sometimes be the result of your mismanagement, and of course must fix no pleasing reflections on the mind. If you have been examining the woman too often; if you have been sillily thrusting your hand into the vagina when there was no need; if you have been pragmatically using the lever or the forceps, and if it so happen that the woman be of phlogistic habit, though you use but little force you may contuse, you may lacerate, you may destroy: and sometimes, without any blame to be attached to the accoucheur, when the head is large and the pelvis small, you have laceration, and all the consequence of compression, more especially if the delivery have been too long delayed — not to add that in the anomalies of labour, notwithstanding the best management, these accidents may now and then occur.

You will sometimes find, (nor must this effect of labour be forgotten,) that under the pressure of the head, *sloughs* of the softer parts will take place, and of the more extensive kind too. The inner surface of the perineum may slough, or the labia pudendi, on either side; and what is more to be dreaded, sloughs may occur in the upper part of the vagina, by which the canal may be laid open into the rectum on the one hand, or into the bladder on the other.

By a rude midwifery, these sloughs may be occasioned. If the accoucheur have needlessly thrust his hand into the vagina, if he have been foolishly distrusting the natural efforts, and if, reversing the motto, he have been drawing down instrumentally, *vi, non arte*, instead of *arte, non vi*, he may bruise the parts, so as to produce sloughs. Sloughs too, no doubt, may be occasioned by the spontaneous pressure of the child's head; and I have been

called to such cases, where little violence has been used. The child's head may be pushed into the cavity of the pelvis, remaining impacted there, so as neither to advance nor recede, this constituting what is called the *incarceration* of the head. When the head is incarcerated, if the pelvis be somewhat large, or the cranium rather small, it sometimes comes away spontaneously; but if the pelvis be small, and the head be large, the cranium may become firmly impacted between the front and back of the pelvis, and sloughs may be the consequence of long continued and forcible compression. To prevent these accidents, when the head is incarcerated you ought to attend to the state of the *pulse;* and if you find the pulse rising, and approaching 130 in the minute, you have reason to suppose that mischief is doing, and that a destructive pressure may exist; while a continuance of the pulse at the natural level, is a pretty certain proof that the parts are not subjected to dangerous compression. When, too, the head is incarcerated, you may make your observations on the degree of pressure; and if the urine flow, and the urethra admit the catheter, and the finger may be passed between the cranium and the symphysis pubis, the probability of slough is small; but the danger of slough is imminent, if the fingers and the catheter cannot be passed up, and the flow of the urine along the urethra be suppressed. In general, when the head is impacted in the pelvis, neither advancing nor receding, it is unwise to let it remain there more than five or six hours; but if the compression is slight, and the pulse is infrequent, this term may be prolonged, and it must be abbreviated if the converse symptoms are observed.

There is one other mode in which sloughs may be occasioned, and that is in consequence of the detention of the head above the brim. When the pelvis is contracted, the head large, and the pains vehement, the cranium detained above the brim is forcibly pushed upon the bones by every effort of the uterus, and in consequence of those repeated descents upon the bones, at last such bruising takes place as occasions sloughs of the bladder and higher parts of the rectum. But in your patients these sloughs will rarely occur, if you adhere to the general rule already recited. If there be no dangerous symptoms, and the woman have not been in labour for twenty-four hours after the discharge of the liquor, try the natural powers; if dangerous symptoms appear, referrible to the protraction of the delivery, or if the woman have been in strong labour for twenty-four hours after the discharge of the liquor, the head making no advances, try the lever or the forceps; and if the lever and forceps fail, and dangerous symptoms demand delivery; or if the pains have continued without effect for forty-eight hours after the amnial gush, you may have recourse to the perforator. Above all other symptoms, mark the pulse, counting it by the watch with your nicest care; so long as the pulse between the pains remains under a hundred, there is no danger of sloughing; and whenever the pulse mounts above this level, approaching 130, you are to be vigilantly on your guard.

So, then, these sloughs may be occasioned, not merely by thrusting up the hand, or by thrusting up obstetric instruments rudely, or by suffering the head to remain incarcerated among the bones of the pelvis, but, moreover, by allowing the head, when detained above the brim, to be too frequently and forcibly pushed down upon the bones; and knowing in this manner the more frequent causes of those sloughings, you will readily know, also, the most probable means of preventing them.

Among the effects produced on the softer parts under parturition, when labour commences, a frequent desire to pass water deserves your notice, resulting in part from *pressure* of the child's head on the *neck* of the *bladder*, and partly from *irritation*. In more laborious labours too, you sometimes find that the bladder is shut, so that neither the urine nor the catheter can be passed, this closure being occasioned, partly by the *pressure* of the child's head on the urethra, and in part by its becoming displaced and distorted. Now accumulation in the bladder is always to be deprecated: by it, lacerations of the body or neck of the organ may be produced in the manner already explained. When the urine is collected, it is not always in our power to introduce the catheter, even though the head be a little repelled; in order, therefore, to prevent the accumulation, as much as may be, the patient should be directed to pass the water while she retains the power; to drink but sparingly, and, in preference, to use those warmer drinks which tend to increase perspiration.

Incontinence of urine is sometimes observed, arising from various causes; by much pressure of the cervix of the bladder it may be produced independently of dissolved continuity, in consequence of mere weakness, the retentive powers returning spontaneously in slighter cases in the course of two or three weeks. When the injury is more serious, the debility remaining for weeks or months afterwards, perhaps for years, it is said that a *blister* on the lower part of the back will do good, and this may be tried. Incontinence of urine, too, results occasionally from *rupture* of the neck of the bladder, torn open during delivery, in the way before demonstrated. In cases of this kind, after delivery, let a catheter be inserted into the bladder, and kept there; and let a *sheep's bladder*, or any other contrivance you please, be connected with the under extremity of the catheter, so as to receive the urine. Keep the parts quiet, improve as much as may be the general health of the patient, and you will now and then have the satisfaction to find that these rents, which were large enough to admit two or three of the fingers, become closed up.

A woman in this neighbourhood having been delivered with much force by the use of the lever, I found on examining her with great care a few days afterwards, that there was a rent in the neck of the bladder, so spacious, that two fingers passed into it without difficulty, and of course no doubt remained as to the nature of the accident. As this case was ushered into a court of

judicature, and a subpœna had been served, in order that I might give evidence with greater certainty respecting the state of the parts, I instituted another and very careful examination some few weeks after the former, when I had the satisfaction to find, that under the use of the catheter, and the improvement of the general health, the wound was closed so completely that not even the vestige of a cicatrix was clearly distinguishable.

Incontinence of urine may also be produced in consequence of sloughing. A week or two after delivery, there come away from the vagina pieces of membranaceous aspect, and of blackish-grey tint, forming in the neck of the bladder smaller or larger apertures, which, when they are capacious, are, I suspect, never closed; for in these cases there is not, as in the former, a mere solution of continuity, but a loss of substance. On the treatment of these sloughy apertures, I may hereafter make a few remarks; but it may not be amiss to observe here, that the way of preventing them, is to prevent the sloughs, by adhering to those rules which have been already prescribed.

When the head passes the pelvis, the nerves may be compressed, more especially if the cranium be large, or the pelvis small, or the lever or the forceps be employed, the trunk of the obturator and the origins of the sciatic being the nerves of the pelvis which are most exposed. Numbness and spasms of the lower limbs occur when the head enters the pelvis; perhaps the patient exclaims, "I 've the cramp," and relief may be obtained by friction and compression of the affected part. After parturition, in general but little inconvenience is felt, yet now and then torpor and debility remain for months subsequently, and more rarely the patient is quite lame; but I once had a patient, a hawker, accustomed before delivery to pedestrian exertion, walking ten or fifteen miles daily, who, for some few days after parturition, could scarcely cross her chamber, yet in the course of a few months she recovered in great measure the power of the member. Kosciuskow, the celebrated Polish general, sustained a division of the trunk of the sciatic nerve from the thrust of a Russian bayonet, and remained lame for some years afterwards, recovering, however, ultimately the use of the limb, and exhibiting in his own person a striking proof of the restorative power of these parts. When the nerves are injured, therefore, recovery, though tardy, may be expected. If severe cramps are produced by instruments, it is better to lay them aside. Cramps appear to be occasioned by the entrance of the head into the pelvic cavity, and when resulting from pressure are prognostics of approaching delivery.

By the bearing of the cranium on the rectum and perineum, tenesmus is produced, an accident worthy of a transient and cautionary remark. Moved by feelings of delicacy, the patient may request her attendant to quit the bed-side; but he must beware of being misled by her solicitations. It is when the head is pushing through the outlet that this sensation is most trouble-

some, and were the accoucheur to quit his post at this moment, the head suddenly emerging when the perineum was unsupported, a dreadful laceration of this part might perhaps occur.

I have in my possession a preparation of the perineum, lacerated so as to lay the genital fissure and anus into one aperture, probably occasioned by the rude introduction of the hand, or the rapid emersion of the head ; — and another which is truly awful, for the term is not misapplied. In it there is a tremendous laceration in front of the vagina, and another behind, probably occasioned by attempts to turn the child. How would you feel if any female of your circle, or in whose fate you felt more than a friendly interest, had been treated in this manner ? There is such a thing as an obstetric *rack ;* and the obstetric rack is formed by ignorance and presumption, and in conjunction with violence, the offspring of the other two.

LECTURE IX.

DELIVERY.

In the preceding lectures your attention has been engaged by the first great section of our subject, namely, the pelvis, the child, and the soft parts in connection with the pelvis, so far as the knowledge of these is necessary to the comprehension of *delivery*. From inquiries of this kind we now proceed to the division of our subject which stands next in order, comprehending *delivery in all its varieties ;* and we may commence with a few general remarks.

It is scarcely necessary to observe to you that by the term *delivery*, you are to understand that process by which the *ovum*, the *fœtus*, I mean, and the secundines, are pushed into the world. This process, occasionally very brief, is more frequently protracted, and may therefore be conveniently divided into distinct *stages*, or *periods*. By different accoucheurs you will find that different methods of division have been adopted ; for myself, I am accustomed to separate the process into its *three stages*, (a division which I find sufficiently minute for practical purposes,) the first stage terminating with the complete expansion of the os uteri, the rupture of the membranes, and the discharge of the water ; while the second closes with the expulsion of the child ; and the third with the detachment and the expulsion of the secundines. Of these three stages, in a natural labour, the last is the most important to the general practitioner, and I would advise you to study it with attention ; for if we except the flooding cases, the laborious and difficult labours, which in the second stage require more than ordinary skill on the part of the accoucheur, are by no means so frequent as those who are inexperienced are apt to imagine.

I observed in the introductory lecture, that the process of delivery, though (except in extreme cases where the *Cæsarean operation* may be necessary) always essentially the same, yet varies in its circumstances in different cases, so as to require a corresponding diversity of treatment. Hence arises the necessity of dividing labours into classes, not for the sake of making useless and refined distinctions, and wasting your valuable time and more valuable intellect in logomachies about method, but in order that plain practical rules may be laid down for the management of different forms of labour. The various forms of parturition may be divided commodiously into five classes, and it is this classification which, after some little experience in the art of teaching, I have been accustomed to adopt, so that in the subsequent lectures, to one or other of the following five classes of the natural, the preternatural, all the flooding cases, those which are laborious, and those which are anomalous, will be referred.

By a labour which is *natural*, I understand not only those deliveries in which no morbid symptoms whatever occur, but also those cases of parturition which are natural upon the *whole;* that is, where the head of the child is presenting at the full period, and where the fœtus and the secundines are expelled by the natural efforts, and this, too, within four-and-twenty hours from the decided commencement of the labour; and in our acceptation of this term labour is deemed natural, provided these characters concur, even though in place of the vertex the face or forehead should present. If it so happen, as it will sometimes, that the head of the child be not presented, but that some other part is found to be over the centre of the pelvis, the foot, for example, or the breech, the abdomen, the shoulder, or the arm, or the leg, the labour then requires to be managed by rules peculiar to itself, and these deliveries are properly enough classed together under the head of *preternatural* labour. Labours are sometimes attended with very large eruptions of blood; these eruptions preceding perhaps, or accompanying or following, the birth of the child. Peculiar practices of course are required, when great quantities of blood are coming away, and life is endangered in consequence; and it becomes necessary, therefore, to constitute a third class of labours, comprising, not indeed every case in which a small red appearance is observed at the vagina, because in many, if not all cases, this occurs, but those cases in which you have blood coming away in alarming abundance, whether before or after parturition; and these may be denominated flooding labours. By *laborious* labours, which constitute our fourth class, I understand those few labours, (for in judicious midwifery there are few,) in which it is necessary to have recourse to instruments to complete the delivery, whether the lever, the forceps, or the perforator be preferred; and lastly, by labours which are *anomalous* and *complicated*, I understand those labours which, with the exception of the extra-uterine, are, upon the whole, natural enough, but to which there

are superadded some extraordinary symptoms, requiring corresponding or important variations in the method of management. Cases, for example, in which you have inflammation of the head, the chest, the abdomen, and so on, creating difficulty; or those cases in which you have ruptures of the perineum, vagina, or uterus; and those cases in which there is fever, plurality of children, or in which the fœtus is lying externally to the womb.

When you are summoned to a labour, especially if you have engaged yourselves to attend, I would advise you, by all means, to see your patient *as promptly* as may be afterwards; for although sometimes you may be prematurely present, and may have to retire, yet procrastination is never wholly unattended with danger, because the labour may proceed more rapidly than you imagined; and there may be floodings, preternatural presentations, or other anomalies, requiring prompt obstetric aid. A child may descend under the feet presentation, and, in consequence of your absence, the head and body of the fœtus may be retained within the parent at the time when there is pressure on the *umbilical cord*, and the circulation being impeded, the child may be suffocated. To avoid these and similar mischiefs that might occur, it is better, in adherence to the general rule, that the accoucheur in all cases, and especially where he has engaged himself, should attend at the *earliest moment* after the summons is received.

If the case to which you are called be known to be laborious and difficult, the lever, the forceps, and the perforator, may be taken along with you, more especially in a country place, where you may have to ride many miles. But as a general habit, I strenuously dissuade you from making familiar companions of your instruments, because they are not wanted — *noscitur a sociis*. The very fact that an accoucheur, on all occasions, puts the lever into his pocket when he goes to attend a labour, proves that he is an officious, meddlesome, and therefore, in my mind, so far, a bad accoucheur. Some men seem to have a sort of instinctive impulse to put the lever or forceps into the vagina. Repeatedly I have stated to you, that you are not needlessly to interfere with the natural efforts. It is only in cases where you have every reason to expect difficulty, that you are justified in taking your instruments. "Lead" yourselves "not into temptation;" if you put your instruments into your pocket, they are very apt to slip out of the pocket into the uterus. The only apparatus which I should advise you to take with you in ordinary, is a case containing the *tincture of opium, a catheter, a tracheal pipe, and a lancet*. Your lancet for bleeding is very convenient in the country, especially where women are robust and plethoric, and, with the soft parts rigid, demanding the relaxation which venesection is calculated to produce. By all means carry with you, too, the tracheal pipe, designed to inflate the child's lungs when it is still-born, in a manner hereafter to be fully explained; and by this instrument many a child may be preserved. Where the bladder is filled, and there is a

difficulty in emptying it, the catheter may be required, hence the advantage of this instrument; a double or flattened catheter should be preferred. Sometimes during delivery, but still more frequently afterwards, opium is required, and the fluid form is of more rapid operation. If a woman have had no children before, and suffer little after delivery, your opiates are needless; but where there have been two or three children, and you learn from your patient that she always suffers considerable pain after delivery, the best method of relieving this pain is to give her about thirty drops of the tincture of opium about one hour after the delivery, thirty drops more being administered an hour after the first, if relief be not obtained.

If you are well known to your patient, on reaching the house you will be welcome to her apartment: but if you have not frequently seen her before, nor attended her on former occasions, I would recommend you not immediately to pass into her chamber. Not having her full confidence, by your presence you might agitate her, and in these cases it is proper to avoid everything that may produce commotion of the nervous system. It is better, therefore, that the accoucheur retire into some adjoining room, where he may see his lady patroness, the nurse, who has generally a great many foolish nothings to say, all of which he may as well hear with patience and *bonhommie*. When the shower of words is blown over, or when Mrs. Speaker reluctantly pauses to draw breath, dexterously seizing the auspicious moment, you may make inquiries respecting the progress of the labour, the condition of the bladder, the state of the bowels, and so on; questions which, in ordinary cases, may with more delicacy be proposed to the nurse than to the patient herself. Should you chance not to be a dear man, a pious man, a good kind creature, or still worse, should the lady be pettish, and declare you to be a brute or a physiologist, so that for these manifold offences she never, never will — never can see you — you may remain in the house, as the female '*never*,' in these cases, comprises but a small portion of eternity, perhaps on an average some one or two hours, and when caprices and antipathies are a little subdued by the pains your presence will be cordially welcome. Now, then, the pains being severe, after you have entered the room, you may make your examination, and if you find the labour rapidly advancing, you must remain at the bed-side, lest the child should come into the world in your absence; but if, on the other hand, your are satisfied that delivery is merely commencing, you may use your own judgment; — remaining, or retiring into another room, as little circumstances render expedient. But here let me remark to you in the way of caution, that the head sometimes comes away very suddenly, particularly when the pelvis is narrow at the brim. The os uteri may have been open for one or two hours, the head making no progress; when unexpectedly under one severe pain, perhaps, the fœtus descends and emerges when it may be you are

on the point of leaving the chamber. Be on your guard under such circumstances; otherwise, as many others have done, you may lose the confidence of the patient.

The more quiet the room the better,—the *coole r*the better; a small fire is advisable, unless the weather be oppressively sultry, for it tends to ventilate the apartment. There should not be many companions with the patient; the nurse, the accoucheur, some very intimate friend, a sort of confidant, to whose kind and sympathising ear she may communicate all her anxieties and all her sorrows,—these are the only attendants she requires.

If the labour be not making much progress, confinement to the bed is not necessary: such confinement tends to make a woman solicitous and impatient, because it leads her to expect that the child will rapidly come away. In the first period, when the os uteri is beginning to open, and the delivery is proceeding in a very tardy manner, the patient may choose her own position, sitting, standing, or pacing the chamber, as inclination leads; but if you find the labour going on rapidly, as you do in most cases, where you have been called in by the advice of the nurse at the proper moment, yon must then confine the patient to that posture under which the delivery is to be accomplished.

Among different nations and different tribes, different postures of delivery are become in a manner *national.* The German ladies, I am told, are delivered in the sedentary position, well calculated to accelerate parturition, by keeping up the bearing of the child's head on the os uteri. In *this country* our women are delivered usually when *lying on the bed,* a posture more easy to themselves. In Ireland, those of the plebeian class are frequently placed upon the knees and elbows, a custom to which some of them adhere when they come over to this country. For ordinary use, however, in British midwifery, I conceive that our national position is the best, because in general it is to this posture of the body that the obstetric rules are accommodated. Now in easy deliveries, when the obstetric offices are few, the woman may lie on the left side, near the edge of the bed, with her feet against the bed-post, and a towel or long napkin secured to the same post in her hands, so as to give her firm points of bearing during the pains; or if the head be not likely soon to reach the outlet of the pelvis, she may vary this posture as inclination leads. But in those labours which require all the assistance of our art, the posture ought to be composed with greater nicety, and the lady as before lying on her left side close upon the edge of the bed, the shoulders should be thrown forward, the loins backward, and the spine a little incurvated; the knees should fall towards the bosom, the bosom towards the knees, and the abdomen towards the bed.

When patients are in this manner placed upon the bed, it becomes necessary to defend the bed by a proper apparatus, in order to prevent its being injured by the discharges; and this apparatus it is which constitutes what is called *guarding.* Among

the lower orders of society, it is a frequent custom to roll up the bed, and a blanket is interposed between the patient and the sacking; but in the middle and superior ranks a more complicated contrivance is adopted, varying according to fancy, but essentially constructed as follows: a skin of red leather is laid on that part of the bed where the woman's hips are placed, and over this one or two blankets, or two or three sheets, folded so as to form an absorbent mass which may imbibe the discharges: over this there is spread out another sheet, which is either pinned to the bed furniture or fastened to the post of the bed, so as to keep the whole of the apparatus in the proper place. The guarding of the bed is the office of the nurse, and with it the accoucheur has little concern; but I am induced to touch on this familiar topic, as when the accoucheur is of juvenile appearance nurses will sometimes inquire, *ex insidiis*, in what manner he would wish the bed to be guarded? If you were at a loss here — if you were ignorant of the apparatus — if surprised, you were to ask what the woman meant, adding, perhaps, surlily, that the only guard necessary was *yourself*, she would infer you had seldom been at the bed-side before, and presume your ignorance of more important matters. *Parva leves capiunt animos*, and with these the bulk of the intellectual world is peopled.

NATURAL PARTURITION.

Quitting these general remarks, we now proceed to the consideration of natural parturition, or that form of labour in which the child's head presenting at full period, is expelled by efforts which, on the whole, are natural, within four-and-twenty hours after the discharge of the waters. In a view to my observations upon this process, the whole course of it may be divided into two parts, the first of which terminates with the birth of the child, and the second with the expulsion of the secundines: and first, of the expulsion of the child from the pelvis. In natural parturition you will sometimes find that delivery is promptly terminated, and with few preliminary symptoms, particularly in the case of women whose families are large, whose pelvis are capacious, and whose softer parts are relaxed. A single pain perhaps occurs, and the child is pushed unexpectedly into the world. More generally, however, parturition coming on in a more gradual manner, precursory symptoms occur; and first the patient observes above, a shrinking of the abdomen, which appears to sink down towards the pelvis; this being produced in part by the contraction of the uterus, and partly from the mass of the uterus, together with the child, subsiding gradually into the pelvic cavity. This sinking may occur two or three days, perhaps more, before parturition commences. When delivery is about to begin, women frequently have a good deal of irritation about the bladder, and sometimes the intestines being affected, they are infested with diarrhœa and tenesmus,

together with a frequent desire to pass urine — symptoms on which we observed before ; sometimes with these premonitory symptoms is combined a discharge which issues from the vagina, consisting of *mucus* tinged with a little blood and this constitutes what is called the *show* or *token* of delivery. The mucus is from the follicles, numerous and large, which lie in the mouth and neck of the womb, and the blood consists of a small drain from a few capillary vessels, passing from the cervix uteri to the membranes, laid open by detachment of these membranes and disruption of these vessels, when the lower frustum of the ovum descends a little, and the mouth of the womb dilates. Hence it is, because the show of the blood is indicative of the dilatation of the os uteri and descent of the membranes, that this sanguineous appearance may be looked on as the token of commencing labour. Now, when labour is about to commence, all these symptoms may be manifested, and you may class them together under the head of the preliminary or precursory symptoms : the shrinking of the abdomen, the discharge of mingled mucus and blood, the irritation of the bladder, and the disturbance of the intestines ; of various duration before active parturition commences ; lasting for a few days or a few hours.

When women have borne large families, of ten or twenty children, for example, delivery sometimes commences with but little preparatory suffering ; more frequently, however, and in first labours especially, you have a great deal of *cutting*, *sawing*, and *grinding* pain felt during the first stage while the mouth of the uterus is gradually expanding itself, and the ovum is pushed down. In ordinary cases, those cutting, sawing, and grinding pains, felt in the back, front, and sides of the abdomen below, and in the upper part of the thighs, attack the patient at pretty regular intervals of from twenty to thirty minutes. Occasionally we meet with women in whom the grinding and cutting pains are permanent, the patient complaining and writhing, perhaps, almost incessantly for hours together ; and this particularly, if she be irritable and sensitive ; and I the rather notice this, because I have seen practitioners confounded by these severe cutting pains when permanent, supposing that they must be attributed to some other cause than the efforts of parturition.

After these pains have continued for a longer or shorter period, a few minutes or a few hours, we then observe the commencement of the bearing efforts, under which the woman draws in her breath, bears down forcibly, and is compelled to make a struggle with all the muscles of her body, abdominal, thoracic, and of the members. Those bearing pains which are accompanied with a sort of groaning, are attended with the descent of the child's head, and are found, therefore, to occur principally in the second stage of the delivery, after the os uteri is dilated, and the waters discharged.

While those efforts are going on, whether attended with the cutting, sawing, grinding sensation, and a great deal of bearing,

or not, we find great changes are produced in the state of the os uteri and vagina. On a first examination, the disc of the os uteri is, perhaps, no broader than a sixpence; but dilating gradually with uncertain rapidity, it assumes successively the breadth of a half-crown or a crown-piece, or a circle of still larger diameter; and undergoing these dilatations, it may be very *thick*, *soft*, and *yielding*, which is desirable; or it may be *rigid*, *thin*, and of unwelcome firmness, when delivery proceeds more slowly, unless, as sometimes, sudden changes occur. Examining the os uteri also, you have an opportunity of examining the membranes; and doing this, you may distinguish the cyst charged with water. When first an examination is made, the os uteri being little dilated, the membranes with the water not protruding, perhaps the cyst cannot be felt; and in your obstetric noviciate, deceived by this circumstance, you may imagine that the water is already discharged; but, as the labour advances, the fluid collects about the mouth and neck of the womb; first the aqueous cyst is felt within the uterus, and afterwards, tense and overcharged during pain, it pushes down through the dilated os uteri, forming there within the vagina a hemispherical swelling, the gathering of the waters, in form like the breast, but without its softness. At this time when the pains are on the patient, the bag seems as if it were overcharged with water and on the point of disruption; but touching it again, as soon as the pains go off, we find it relaxed and yielding as if but partially filled. When at length the mouth of the os uteri is wide open, the bag, which seems to be extremely tense, lying out into the vagina, bursts open spontaneously, or under the touch of the accoucheur, or without his touch, and a large eruption of water, of half-a-pint or a pint takes place, and thus, though you are not feeling the membrane at the moment, you may know the laceration has occurred; here it may be as well to remark, that it is not always a rupture of the membranous cyst containing the child that takes place at this time, for we may have a rupture of another receptacle, this membranous receptacle being made up of *three* thinner tunics, one lining the other; and the water may issue from the bag, formed between the *decidua* and the *chorion*, that is, the two outer linings, a considerable discharge being produced in this manner. When the eruption is not from the bag in which the child is contained, alarm may be occasioned, but this is groundless; nor do I know that the point is in any way of much importance, though, to prepare your mind for the accident, I thought it proper to mention it. Let me add, that when there is a plurality of children, the number of gushes may correspond with the number of fœtuses.

When the mouth of the uterus is fully expanded, and the bag as thoroughly laid open, the head of the child passes through the pelvis in the various ways so largely demonstrated, and which, therefore, I shall here but consider very briefly. The vertex, as usual, presenting in the beginning of the labour, the face ordinarily

lies towards the synchondrosis, the occiput towards the acetabulum, and the chin upon the chest; while the labour closing and the head emerging, the face lodges in the hollow of the sacrum, the occiput under the arch, the sagittal suture on the perineum, and the chin still upon the chest.

In labours on the whole natural, when the vertex presents, the face may lie on the symphysis pubis throughout the delivery, the chin being thrust forcibly down upon the chest, and the head passing the pelvis with the shortest of the three axes; that, I mean, stretching from the upper part of the forehead to the lower part of the occiput, lying throughout the labour between the front and back of the pelvis. In cases of this kind, formidable difficulties may arise, sometimes craniotomy becomes necessary, and much more rarely the forceps, the head being sometimes expelled by the natural efforts within the twenty-four hours, not without much pressure upon the bladder, rectum, and perineum.

In labours on the whole natural, presentations of the forehead, occiput, and ear, may occur. Of the ear, the presentations are so rare, that I deem it unnecessary to dwell on them; and presentations of the occiput requiring no peculiarities of management, require no further notice; but when the forehead is lying over the centre of the pelvis, the case becomes a little more important. The forehead presenting, rectification or instruments, as explained already, may become necessary in some cases; but in most instances, I believe the labour may remain altogether natural enough notwithstanding, the fœtus being expelled within the twenty-four hours by the unassisted efforts of the womb, the presentation sometimes changing for that of the forehead, and sometimes for that of the face. When the face of the child presents, rectification may be sometimes proper; if the head be large, the pelvis small, or the parts rigid, the perforator may be required, the forceps being seldom admissible when instruments are really necessary; but in face presentations generally, if you will leave them alone, I believe the head will frequently descend under the natural efforts; though the softer parts, the rectum, bladder, vagina, and perineum more especially, may be compressed more than desirable. So that it seems, from this general survey, that in natural labours, as they are technically called, there are various ways in which the head may pass, or attempt a passage — the vertex presentations being most frequent; but the presentations of the face, the forehead, the occiput, or the ear, the more rare, not being excluded altogether.

The passage of the child through the pelvis is attended with great pain, as we all know; and so certain is this, that the efforts are usually denominated the *pains*. The sensations are described as of various kinds — *dislocation*, *bursting*, incision, and a certain *indescribable* feeling, which it is extremely difficult to render intelligible to our sex. But to explain: — When parturition is going forward, in its commencement particularly, the woman may

have a pain, as if the sacrum were going to quit its place. This is what I call the *dislocatory* feeling. This feeling leads the woman to call upon the nurse, and bid her bear upon the back — a practice from which she finds considerable relief. I suppose, therefore, this sensation may be partly produced by the sacrum being put aside a little by the passage of the child. I was once asked by a lady, whether, at the moment of delivery, the back bone was not actually dislocated: — such was her feeling on the subject. As there is a relaxation of the ligaments during the delivery, before explained, some slight displacement of the sacrum posteriorly may be supposed really to occur. Nevertheless, I have strong reason for suspecting what I should not have supposed *à priori*, that this pain in the loins is owing to dilatation of the *os uteri*; for, where I have myself been putting my fingers into the mouth of the os uteri, and dilating it, when perhaps I ought not, and when, it may be, I had better have refrained, this feeling of dislocation has been distinctly felt. During the passage of the head through the vagina, it is that the next sensation, that of disruption, is perceived; and this sometimes so forcibly, that I have heard patients compare it to a feeling as if they were torn limb from limb.

The cutting, sawing sensations are observed on two occasions; first, when the mouth of the womb is expanded, and secondly, when the head passing the genital fissure, the perineum is forcibly dilated, women sometimes exclaiming at this time, "You are cutting me," when in reality the accoucheur is merely supporting the part.

The strong contractions of the womb which expel the child, which may be called the *bearing efforts*, give rise to the remaining sensation, and that is a very distressing one indeed; so severe, that it compels the patient to cry out, and is a sort of feeling women cannot distinctly define; nor can they therefore make you clearly comprehend it. It seems to be produced by the strong *muscular action* of the *womb*, and may, as to its cause, be of the same nature, though not of the same feeling, as we experience in the *gastrocnemii* muscles when seized with the cramp.

When the child's head enters the world, very great relief is obtained; some women say they feel as if they were in heaven, or use other expressions equally glowing and emphatic. This cessation of the pains may be of brief duration only, or it may continue for ten minutes or twenty minutes; one or two strong pains afterwards supervening and the body being expelled. In natural labour, as a general practice, after this expulsion of the head, it is always wrong for the accoucheur to lay hold of the child and pull out the shoulders; he ought to suffer the natural efforts to expel them. The duration of the whole process, and particularly that of the second stage of labour, varies exceedingly; the child being expelled sometimes in a few minutes, sometimes after exertion of six, twelve, and twenty-four hours, or longer. Giving my atten-

tion almost entirely to the difficult forms of labour, I have not had much opportunity of remarking, in many cases, those indications which, in natural labour, foreshow its probable duration. I may observe generally, that the more the previous children, the more speedily labour proceeds. *Cæteris paribus*, the larger the pelvis, the more rapid; the smaller the pelvis, the more tardy the delivery. Where the softer parts are relaxed, the delivery is facilitated; and where they are rigid, it is delayed. Much depends upon the efforts of the woman: — in some women the efforts are sluggish; in others they are very violent. Much also depends upon the state of the os uteri; and if you find it wide open, thick, soft, and yielding, where a woman is of the ordinary size, if the womb is active, and there have been children before, the head descends quickly enough; but if the disc of the os uteri do not exceed the breadth of a shilling, being thin, unyielding, and contracted, then parturition is not so speedily accomplished.

MORBID SYMPTOMS DURING LABOUR.

In the progress of labours there are various morbid symptoms, not indeed of much importance, yet not to be overlooked altogether. When the child is about to enter the world, tenesmus is felt for a reason I explained to you yesterday, namely, in consequence of the bearing of the head on the sacrum, perineum, and rectum. Micturition will also take place, principally, from the pressure of the child's head on the neck of the bladder in the commencement of labour; this requires no remedy, but you ought to leave the room occasionally. Cramps are likely to be produced from pressure on the obturator and sciatic nerves, and in a natural labour, an attack of the *cramp* is generally favourable; the child being sometimes born soon after the cramp comes on, as it occurs principally when the head of the child is rapidly descending. Again, in natural labours you have *vomitings* occurring during the first stage, and scarcely requiring a remedy. If medicine be necessary, the effervescing draught is perhaps the best. Four scruples of citric acid may be dissolved in four ounces of water, and five scruples of carbonate of potass in four ounces of water, and a table-spoonful of each of them when effervescing may be given every quarter or half hour till the vomitings cease. Very severe *rigors* and *shivers* are felt, with which, if you were unacquainted, you might be alarmed, women sometimes shaking as if they were in an ague fit. If this be followed up by symptoms of pyrexia, fever is to be feared; if by severe pains in the head and abdomen, evidently not proceeding from the labour, then you may suspect that there is inflammation. If there be much flushing of the face, throbbings of the carotids, and the pulse high, you have reason to apprehend that convulsions may supervene. In such cases, abstract blood; twenty, or five-and-twenty ounces from the arm. These accidents however are rare; in general,

where you have these symptoms, without the other signs of fever, inflammations or convulsions, they are not to be viewed as alarming, but as suspicious, as they seem to indicate that the labour will be active, and its termination speedy.

LECTURE X.

DUTIES OF THE ACCOUCHEUR.

We have now to speak of the duties which devolve upon the accoucheur in the management of a labour; duties which, though few, are by no means unimportant. If, when parturition begins, you make examination of the abdomen externally, you may generally find the uterus clearly enough distinguishable beneath the abdominal coverings, and forming a tumour there both hard and solid. If an examination be made within, frequently one or two fingers may be passed into the mouth of the womb, and beyond this opening you may feel the cyst charged with water, sometimes distinguishing the presenting part. Even where the uterine mouth excludes the fingers, still if you place them between the os uteri and the symphysis pubis, the child may be felt just behind and above the symphysis, through the neck of the uterus, so that there can be no doubt that the woman is in a state of pregnancy: and of consequence, it rarely happens that much investigation of this point is requisite. Yet now and then, where there chances to be pain resembling that of parturition, but arising from another cause; and where the woman, under error, has supposed herself pregnant, the practitioner is called to cases of *reputed* delivery, when in reality gestation is not begun. A gentleman once calling at my house, told me, not without earnestness, that he had under care a case of labour about which he was very anxious. "The mouth of the womb," said he, "is beginning to open, and I can feel the child, but the patient is somewhat weak, and labour makes but little progress." On my inquiring how long delivery had been protracted, "a few hours," was the reply; and he added, "that there was no very pressing symptom." "A meddlesome midwifery is bad," I rejoined, "therefore it is better to wait, and not unwisely and rashly distrust the best of accoucheurs—Nature—the mother of us all." A day or two passed away, after which he called upon me again, observing, that his patient, still undelivered, was getting weaker and weaker, and that he wished me to give her a visit. On entering the apartment, I saw the woman lying in state, with nurses, accoucheur, and all the formalities attending a delivery; one small point only was wanting to complete the labour, which was, that she should be pregnant; for, although the practitioner, one of the omnipotent class, had

distinguished the child's head in the uterus, there was in reality no fœtus there. A few hours afterwards the patient died, and on examining the abdomen, we found the peritoneum full of water, but the womb, clearly unimpregnated, was no bigger than a pear; and thus it sometimes happens that you are called to reputed deliveries, when in truth the patients are not even pregnant; and you may therefore set down as one office, which, in natural labour, devolves on the accoucheur, that of deciding in dubious cases whether pregnancy exist or not.

In general, when you are summoned to a labour, there can be no doubt as to the commencement of the delivery. Often you are not called upon till the middle of the process; when you find the womb open, the liquor amnii discharged, and the head of the fœtus approximating the outlet, so that respecting the reality of parturition there can be no doubt. As women, however, have occasionally *false pains* in the abdomen, sometimes of a spasmodic nature and sometimes inflammatory, it may be that you are called to a labour supposed to have made some progress, when in truth it has not begun. To decide, therefore, in these cases, whether delivery be commenced or not, is a second duty which devolves upon you, and this you determine by the following diagnostics. When the pains occur, make a careful examination of the os uteri; and if you find, after a succession of pains, that the mouth of the womb is not merely dilated, but of increasing dilatation, — with a disc, at first, as large as a shilling, — becoming after a few efforts as broad as a dollar, such increasing expansion is decisive proof that delivery has begun. Mere openness of the os uteri, however, proves nothing. I know from personal observation that the mouth of the womb may admit with facility the entrance of two fingers for a fortnight or more before delivery commences; but an increasing expansion of the os uteri, the commencement of labour may be regarded as certain.

Desirous to know whether delivery be, or not, begun, you must make further observations upon the membranes. If, during the pain you feel the membranes tense, like an overcharged bladder, and relaxed during the absence of pain, so as to yield readily under the touch of the finger, it may be certainly concluded that parturition is commenced; or should the membranes be ruptured, examine the presenting part, which you will find advance and retreat simultaneously with the action and inertness of the uterus. Here, then, are the three principal indications by which we are enabled to decide in dubious cases whether the delivery is begun; — the advance and retreat of the presenting part, the tension and relaxation of the membranes, and, above all, the increasing expansion of the mouth of the uterus.

Other indications of incipient parturition there are, less decisive, but not to be passed without notice: when delivery commences, you will find sometimes an openness of the vagina, and a considerable relaxation of its texture. You will find, too, that

the patient has usually the pains described to you before, of cutting, grinding, and sawing character, returning perhaps every ten or fifteen minutes, or perhaps every twenty. Moreover, when delivery commences, the show frequently issues from the vagina, formerly supposed to be of peculiar nature, but consisting, in reality, of mucus mixed with a little blood. Lastly, when delivery begins, usually a few days previously, there is descent of the abdomen, the abdominal tumour becoming smaller than it was before. All these, however, — the descent of the abdominal tumour, the appearance of the show, the state of the pains, and the relaxation of the vagina, are to be looked upon as presumptive, not as decisive signs. The tension and relaxation of the membranes, the retreat and advance of the presenting part, and, above all, the increasing dilation of the os uteri; these are the sole diagnostics in which in dubious cases we may confide; and these diagnostics, properly consulted, will preserve you from the folly of needlessly waiting for hours together to make the discovery at last, that labour is not yet commenced, or perhaps, after all, that the patient is not pregnant. These supererogatory services are not quite so glorious is obstetrics as in theology, though some kind friend is seldom wanting to play the recording spirit, and take care that your merits may shine conspicuously in a familiar page of his register —

"Poor Wilson — poor Tomson — I have a very great regard for him, he is a very clever man, certainly, — a star of the first magnitude, *but*" — every blockhead knows how to round off these periods.

When delivery commencing, has made some little progress, you may distinctly feel the expanded os uteri, through which, as the waters gather, the aqueous cyst is bearing, and for the management of this cyst some rule is required. There are some practitioners who are in the habit of bursting the membranes as soon as they can reach them, because they think that, in so doing, they accelerate the labour, while there are others, and I accede to their practice in preference to that of the former, who always leave the rupture of the membranes to nature, as they conceive it improper needlessly to interfere. To burst the membranes by the finger, instead of waiting for spontaneous rupture, is faulty; first, because the interference is needless and meddlesome; secondly, because this cyst of water is the instrument nature employs in order to dilate the mouth of the uterus, the opening of which it enters like a wedge, acting on the margin by expansive pressure. On the other hand, it is not wise in every instance to commit the rupture of the membranes to the natural efforts; because now and then, in the sixth or seventh month especially, the ovum tends to come away unbroken, like the egg of an ostrich; and when this is the case, much flooding may occur, and the child will most probably be drowned, as it comes into the world immersed in a bag of water. Sometimes, though very rarely, the membranes are

morbidly unyielding, firm as a bullock's bladder, and labour may be delayed for several hours in consequence. These are, therefore, exceptions to this general rule of leaving the rupture of the membranes to the natural powers; and the rule which I would prescribe, and which, if adhered to, will in general keep you near the just line of practice, is the following: in general commit the rupture of the membranes to nature, and in nineteen cases of twenty they will yield and the delivery will do well. If, however, you find that the os uteri is laid wide open, and that the membranes pushing down along the vagina towards the external parts are not giving way, you may then rupture them; for, no longer of service in dilating the passages, they may retard the birth; or should the laxity of the parts, or the capacity of the pelvis allow of their transmission entire, floodings fatal to the mother and destructive to the fœtus may be the result. In labours generally it is of very little importance whether the practitioner know or not what is the presentation, because in general it is a natural one, and notwithstanding his ignorance, the child will safely enough come away. Nevertheless it may be that the child lies unfavourably for transmission, and the aids of art may be required. In cases of this kind, an accomplished and scientific accoucheur ought to be prepared to administer the necessary assistance; — as he can do nothing till he know the presentation, it is desirable that in every labour he should, as early as may be, make out what is the part of the child that is lying over the centre of the pelvis, so that he may take his measures accordingly.

There are different periods of labour at which the presentation may be ascertained; when, for example, the head is about to enter the world; or when the os uteri is fully expanded, the membranes broken, and the cranium on the point of entering the brim of the pelvis; or, lastly, when the disc of the os uteri, about as large as a shilling, will admit two of the fingers, so that if you make your examination when the womb is quiet and the membranes are relaxed, the presenting part may be easily distinguished. Not to bewilder you, however, with discordant practices, I may observe, that in ordinary cases, it is best to make the examination at the time commonly recommended; that is, when the mouth of the os uteri is laid wide open, when the membranes are broken, and when the liquor amnii has just been evacuated; then the head of the child, lying naked within the brim of the pelvis, within your reach unaltered by compression, you may the more easily recognise it.

Now in a natural labour, such as I am here considering, the mouth of the uterus being open, the membranes broken, and the liquor amnii just discharged, the vertex of the child may be known by its *roundness* and its *hardness*, by its sutures and its fontanels, often by the adjacent ear, and frequently by the hairy growth upon the scalp. To ascertain all this requires some small share of experience and dexterity, but not much; for with an ordinary

share of skill the practitioner may decide easily enough, whether it be the vertex or some other part that is lying over the centre of the pelvis.

In making this examination, you put the woman into different positions according to the custom of the country where you practise. In some countries, the accoucheurs make the examination in the recumbent posture; in some, in the sedentary; and among the plebeians in Ireland, the patient is examined on the knees and elbows. For the purposes of British midwifery perhaps the ordinary obstetric position of this country is the most convenient; in which the woman lies on the left side, as near to the edge of the bed as may be; the bosom approaching the knees, the knees advancing towards the bosom, the shoulders forward, the loins posteriorly, the feet, if agreeable, bearing against the post of the bed, when the position being composed in this manner, the first and second fingers of the left hand, as formerly recommended, will be found the most convenient for making the examination.

If you have clearly ascertained that the presentation is the vertex, the principal point of examination in natural labour, perhaps it is better, when you are young in practice, not to disturb the mind with investigations respecting the *situation* of the different parts, unless indeed this be done with a view of acquiring from exercise a more complete mastery of examination; for in ordinary labours it matters little whether you are acquainted or not with the *situation* of the cranium. Every accomplished accoucheur, however, deserving to be considered as an adept in obstetrics, ought to be able by all means to determine this point at once; and when you have attended, perhaps, some hundreds of cases, and paid particular attention to this part of examination, you will find this easy enough. Many accoucheurs fail egregiously, but the fault is not in the art but in the man; for if we except some few cases, the situation of the head may be readily made out, provided the practitioner, not a mere talker in midwifery, is really a proficient in his art. When you are desirous of discovering the situation, make it your first endeavour to distinguish the ear, by interposing the finger between the symphysis pubis and the head of the fœtus; and there, if the accoucheur be skilful and the condition of the labour natural, even in the earlier parts of labour the ear may be felt without difficulty. Again, anxious to ascertain the position of the head, examine the ear once more, taking care not to double the part upon itself, observing carefully which is the *flap* of the ear, and which is that part of the ear which is *bound down* close upon the head, for the flap of the ear lies towards the occiput, as the part which is sessile is lying towards the face, so that where you feel the ear, and take care not to displace and falsify its indications by doubling upon itself, observing respectively those parts which are attached and disengaged, you may make out the situation of the face and occiput with facility and precision. Further, by examining the sutures and fontanels, (an

observation never neglected in my own practice,) you may determine what is the situation of the head. Feeling the sagittal suture you trace it to one extremity, and there discover a fontanel of small size, of triangular shape, and of three concurrent sutures, the two legs of the lambdoidal and the sagittal; this part I know by these characters to be the *little fontanel*, and where the little fontanel is, there is the occiput. Then tracing the sagittal suture back upon the other extremity, you find there a larger deficiency of bone; the greater fontanel of rhomboidal shape, with conflux of four sutures, I mean the two legs of the coronal, the sagittal, and the frontal. By these characteristics I recognise the *larger fontanel*, seated to the left of the pelvis, and as the larger fontanel lies near to the face of the child, therefore it is to the left of the pelvis that the face is situated; so that by examining carefully the ear, sutures, and fontanels of the head, in ordinary labours the position may be discriminated with great exactitude. Sometimes the membranes are ruptured before the os uteri is dilated; examinations may be made in these cases as soon as the finger can be introduced. In ordinary examinations the position of the patient requires no nice adjustment; but if you would examine with more than ordinary care, the rules of posture already prescribed must be observed. When the vertex is much swelled from compression it may be confounded with other parts, and more especially with the nates, from which, with due care and dexterity, it may be discriminated easily enough by the diagnostics enumerated. Under continued pressure of the finger, the intumescent scalp is gradually dissipated, when the sutures and fontanels become clearly distinguishable, or the edge of the parietal bone may be found lying on the margin of its fellow; or sometimes we have, in a copious growth of hair, a decisive indication of the vertex. These obscurities from intumescence are frequent in consultation cases, but in cases originally under your care, they must be of rare occurrence provided you adhere to the rule before enjoined, and make your examinations in the earlier part of labour, as soon as the liquor amnii has been discharged; for before effusion of the liquor, the cranium can be but little compressed.

In a natural labour the less you interfere the better, and therefore when once the membranes are open and the position of the head is made certain, provided you find the child lying in such manner as not to require assistance, you have in fact little to do beyond merely sitting at the bed-side and watching the progress of the head to the outlet. If it be a case of instruction, and you are beginning your practice, then indeed it is proper that you should examine as frequently as may be, without injuring the woman, with a view of learning to recognise the different parts of the pelvis and the head. But if the case is managed, as cases generally ought to be, merely for the comfort and safety of the woman, then the less you examine in a natural labour the better, though it is

sometimes necessary, during pain, to feign an examination, lest the patient should fancy hereself neglected.

As the head is making its progress through the pelvis, there is one point to which the accoucheur should attend, and that is, to keep the bladder duly evacuated. When suffered to accumulate, the urine may injure the bladder by over-distension; and in protracted labours, as I have told you already, the back part of the cervix vesicæ may become ruptured and opened into the vagina, of which accident I have now seen two conspicuous cases. In a natural labour the natural efforts are usually sufficient for the evacuation, nor should the catheter on any account be introduced unless the natural efforts failing, the accumulation of water clearly requires the operation, and the requisite dexterity and facility insure its safety. When the bladder is obstructed the less the patient drinks the better, and, within limits, the more she perspires the better. It is desirable therefore that a small diaphoresis should be sustained; and, above all, she must not drink copiously provided the labour be somewhat prolonged.

When under natural efforts, with little interference on the part of the accoucheur, at length the head of the child comes down into the outlet of the pelvis; then it is that another and very important duty devolves on the accoucheur, which is, the protection of the perineum — a protection which in some cases is essentially necessary. If the head of the child be small, or the softer parts relaxed, or many children have preceded, the cranium emerges without difficulty or danger, but if it should so happen that the softer parts are rigid, the head large, or the outlet of the pelvis contracted, then ordinarily the head comes through in a more gradual manner, advancing, retreating, as ease and pain reciprocate, till gaining progress with every effort, at length the fœtus emerges. Ten, twenty, thirty minutes, or more, this process may occupy; and when, as in first labours, the parts are rigid, defence of the perineum becomes very necessary, for it sometimes happens that the part is laid completely open, so that the genitals and anus form one common fissure. The method of protecting the perineum is simply this: I speak of ordinary labour — when the fœtal cranium bears on the labia pudendi and perineum, dilating these parts as if it would burst forth, let the left hand be laid naked upon the perineum, so as to be ready for counter-pressure, and get a bearing on the vertex with the right. This done — as a meddlesome midwifery is always condemnable — should the softer parts, during the subsequent pains, appear to be in no danger of laceration, content yourselves with directing the patient to abstain from forcing, and suffer the head to advance; but from the higher tension, it is obvious that rupture is to be apprehended; you must, then, though unwillingly, resist the bearing forth of the fœtus, supporting the perineum with the left hand, and opposing the progress of the vertex with the right; in such manner, however, as not to delay the emersion longer than the safety of the perineum re-

quires. At this time the woman ought not to urge voluntarily; — if the pains are very vehement, rupture of the uterus may occur should the birth be too long delayed.

When the head is in the world, do not lay hold of the neck and endeavour to draw down the shoulders, — for here, as ever, a meddlesome midwifery is bad. The natural efforts, if fairly tried, will in ordinary labour expel this part of the child; and it is found that where the efforts are left in this manner to expel the shoulders as well as the head, the womb contracts afterwards more kindly and effectually, and the placenta becomes more safely detached. When the child's head is come into the world, remember that a prudent practitioner ought not to interfere, but must still suffer the uterus to act in its own way, when by the natural efforts the shoulders will be expelled.

It not unfrequently happens in labours, on the whole natural — perhaps, in one out of five or six cases, — that the umbilical cord is surrounding the neck of the child, coiled round the part once only, or repeatedly — say six or seven times. When the cord surrounds the neck in this manner, the simplest and best method of detaching it is to put a finger or two into the loop, by pressure dilating it, afterwards laying the chin upon the chest, and bringing the loop over the back of the head so as to set it at liberty. If you cannot disengage the cord in this manner, you may then open as before, and suffer the shoulders to pass the loop. If the cord surround the neck two or three times, — and I have heard of one case in which the coils were six, and another in which they were seven in number, the loops being many, you cannot open the cord in this manner, but a better method is to leave the cord round the neck until the body be born, when it may be disentangled with facility.

When the body is expelled, you may lay hold of the child; but be careful not to draw it away far from the genitals of the mother. In general, the umbilical cord of the human female is about two feet long, occasionally much longer; it sometimes happens, though rarely, that the cord is unusually short. Now in such a case, if you were to draw the child away, you would in fact make a pluck at the placenta; and if the womb were disposed to become inverted, this displacement might be produced; or the womb, resisting the impulse, you might partially detach the placenta, producing perhaps a flooding not without its dangers; so that to preclude these dangers, it is better to keep the fœtal abdomen close upon the genitals of the mother, until you find the cord is of full length. The child in the world, the next office which devolves upon you is that of tying the umbilical funis; an operation which, perhaps, it might not always be necessary to perform, because I believe that, in many cases, if the umbilical cord were cut through and no ligature applied, such is the well-provided contractibility of the umbilical arteries, that they would close, and dangerous hemorrhages be prevented; particularly if, as in a

state of nature, the cord were divided by the *teeth*, as I presume it is among animals, when divided by them at all. Nevertheless, as the safer course is to tie the funis, and as this practice is generally adopted, ligatures should always be applied. In tying the cord, you may make use of *two ligatures*, the first at the distance of about three or four finger-breadths from the fœtal abdomen. The ligature ought not to be applied close upon the abdomen; first, because a portion of intestine protruding in the way of hernia might be included in the ligature, giving rise to strangulation; and secondly, because, the cord being tender, you might, with the ligature, cut down into the vessels, occasioning thereby a bleeding, which, as no room would remain for a second ligature, it might not be easy to repress. At the distance of two or three finger-breadths from the abdomen, therefore, the first ligature is to be put on, and the second may be applied about two inches from the first. Of the kind of ligature it may be remarked, that a small skein of thread or silk will answer the purpose exceedingly well, consisting not of *two* threads only, for these might break or cut the cord, but of several, ten or twelve, for example. When applying, coil the ligature once round the cord and draw it very tightly, not neglecting this caution, as the elasticity of the funis protecting the vessels, they might by lighter pressure be imperfectly closed, and might show a disposition to bleed. Having coiled the ligature once round the cord, and tied it in a single knot, apply it a second time on the same crease as before, and draw it tightly again, afterwards making a third loop still on the same crease with the preceding, drawing it tightly also, and securing now by a double knot. The first ligature applied in this manner, the second may be put once upon the cord, about two inches from the former, and then, the cord being brought under view, you may divide with the scissors, not ambitiously imitating certain great originals in midwifery, of whom some have amputated a finger together with the cord, and others a portion of the male organ.

The umbilical cord divided, you cover the head with a cap, and, on turning round, you are perhaps surprised to find near you some fair nymph, who presents a woollen texture called the receiver, and to the protection of this lovely vision, of course, the guardian spirit of the child, the much-expected visitant is confided. Respecting the fit moment for applying the ligature to the cord a difference of opinion prevails; some advising us to wait till the funicular pulsation ceases, and others recommending ligature as soon as the fœtus enters the world. Not to enlarge tediously upon this subject, I may remark here, that when the child is vigorously alive, breathing, crying, struggling, enjoying the full action of the respiratory and vascular system, I do not scruple to put a ligature on the funis as soon as it comes into the world. On the other hand, if I find that the vital actions are very weak, whether from previous pressure on the cord, on the head, or on any other part, I delay the ligature until obliged to cut it away, in order that I

may have recourse to the respiratory apparatus, and the use of the warm bath, of which I shall hereafter treat.

As soon as you have delivered the child to the attendant, you should in every case make an examination to ascertain whether there be another fœtus in the uterus. Repeatedly it has happened, that the accoucheur has wished the parent joy, has retired from the room, has even left the house, and yet perhaps as soon as he has crossed the threshold, a second child has made its appearance. In order to avoid so gross an error, you ought in all cases, as soon as the first child has emerged from the uterus, to ascertain whether there be a second. If, as in ordinary labours, no second fœtus be in the womb, on laying the hand above the symphysis pubis, you distinguish there the uterus forming a mass of varying firmness, in bulk not exceeding much the size of the fœtal head, and when proceeding with the investigation, you examine internally at the mouth of the womb, sometimes the placenta, sometimes the membranes may be felt — never, of course, the parts of a fœtus. But what if there be a second fœtus in the uterus? Why, in such cases, the womb, examined externally, feels as large as in the end of gestation ; and when internal examination is instituted, the cyst charged with water, or the members of the child may be distinctly felt. Blood collecting in the membranes of the fœtus, which has been expelled, sometimes simulates the watery cyst of another child ; but the issue of clots in place of water prevents deception here. Water, air, adeps, or a diseased growth of the viscera, of the ovaries especially, may produce abdominal enlargement, confounded by the unskilful with the intumescence from a second child ; but the scientific and able accoucheur may always distinguish by grasping the contracted womb externally, or examining the mouth and neck within. Satisfied that there is no other child in the uterus, you may then very carefully wrap up the genitals in well-aired napkins, afterwards bracing the abdomen with a broad bandage applied over the abdomen externally to the dress of the patient, with that degree of tension which may yield a sense of grateful support. Mr. Gaitskell, of Rotherhithe, has contrived a bandage excellently well adapted for this purpose. The bandage may be followed by a cordial composed of one table-spoonful of brandy and three of water, with as much sugar and nutmeg as may agreeably flatter the palate of the patient.

These, then, are the duties, simple and few, which devolve on the accoucheur in ordinary labours. Briefly I shall recapitulate them : Rarely is it necessary to ascertain whether the woman be in a state of pregnancy ; rarely is it requisite to examine whether the delivery be or not begun. With rupturing the membranes, the less you interfere the better ; they are to be broken solely when preternaturally unyielding, or where there is a disposition in the whole ovum to come away at once. In every instance the scientific accoucheur should make out the presentation. In every delivery it is indeed desirable that the situation of the child be discovered,

yet this is by no means peremptorily necessary. The best time for examination is on the discharge of the liquor amnii; when the labour is found to be natural, the less we interfere the better. When the head is at the outlet, the perineum must be protected. When the head is in the world, ascertain whether the cord is on the neck, disengaging it if necessary. When the head of the child is born, in your general practice, leave the expulsion of the shoulders to the natural efforts. When the fœtus is completely in the world, keep it as near to the genital parts of the mother as may be. If the child be vigorously alive, breathing, crying, or struggling, tie the cord soon after birth; but when it is languid, wait till the funicular pulsation ceases. Apply two ligatures, one at the distance of three finger-breadths from the abdomen of the child, and the other at a little distance from the former. The ligature in connexion with the child's abdomen should be applied very tightly, so as to make it more secure against bleeding after the cord is cut through. Cover the head with a cap, deliver the child to the attendants, to be washed and dressed by the nurse, examining the end of the cord so as to satisfy yourselves that it is secure. Cover the genitals, administer some cordial, ascertain that no other child remain in the uterus — these are your duties.

You will sometimes find that children are *still-born*, as it is called; that is, although they are *not dead*, they do not cry, or manifest other indications of life, and this usually from one of two causes; first, pressure of the umbilical cord, and secondly, more frequently and more dangerously, from compression of the head, contusing the brain, and perhaps producing a fatal apoplexy.

Of the various practices recommended for the resuscitation of still-born children, I may observe, there are two on which I myself place a principal reliance, and which I would recommend you to urge with diligence, not however excluding subordinate remedies, and these two remedies are the artificial respiration and the warm bath. Le Gallois, a distinguished French physiologist, removing the head of the rabbit, secured the vessels of the neck, the animal after this operation lying to all appearance dead; but when, after having prepared the trunk in this way, he resorted to artificial respiration; in a few minutes the heart began to act and the blood to circulate, and throughout the whole muscular system irritability was renewed; and thus, by means of artificial respiration, though the trunk was decapitated, he could keep it in a state of active vitality for one, two, or three hours; nor can stronger proof be adduced of the efficacy of pulmonary inflation in renewing and supporting the action of the heart and arteries. In performing artificial respiration on new-born children, I have frequently observed, that while the respiration was continued, the cord pulsated, ceasing to beat in a few seconds when the operation was suspended, and this repeatedly. These facts admitted, there can be no doubt, that when the fœtus is still-born, artificial respiration should be diligently tried; indeed if this and the warm

bath fail us, I know of no other resuscitants on which we can confidently rely. In the fœtus still-born, you cannot execute the artificial respiration by pressing the front of the chest upon the spine, and then suffering it to recoil, the way sometimes essayed in the adult. In one case, for fifteen or twenty minutes together, I diligently operated in this manner, without producing resuscitation ; and on examining the child next day, I found that scarcely a particle of air had entered the lungs. Neither can you effectually inflate the lungs, so as to execute the artificial respiration well, by blowing the air into the month, not even if you previously open the *rima glottidis* by the insertion of the finger, and close the œsophagus by pressing the larynx upon the œsophagus. The only mode of performing this operation effectually is by means of this small instrument, the *tracheal pipe*, which I think every accoucheur should carry along with him to a labour. The tracheal pipe is a little tube of silver, designed to pass into the trachea, its end closed like a catheter, with a long, broad fissure on either side to give free vent to air and mucus. The closed extremity and lateral openings I prefer, as there is less risk of injuring the delicate membrane of the trachea, if a terminal aperture do not exist. In introducing this instrument, there is some difficulty at first if you do not manœuvre rightly ; yet every moment is of the greatest importance, for while you are blundering the child is dying. My own method of operating is the following : — I pass the fore-finger of my left hand down upon the root of the tongue and into the rima glottidis, and then using the tube with the right hand, I slide it along the surface of the finger, used as a director, till reaching the rima I insert the tube at the moment when the finger is withdrawn from it, afterwards feeling on the front of the neck whether the instrument be lying in the trachea or the œsophagus. This done, you may take the child into your hands, and from your own lungs you may inflate the lungs of the fœtus, emptying them afterwards by means of double pressure of the hand, on the thorax I mean and the abdomen, the latter pressure being necessary in order to urge upwards the diaphragm. Operating in this manner, you may execute the artificial respiration with the best success. There ought to be five-and-twenty or thirty respirations in a minute, the new-born child breathing faster than an adult. You may ask, perhaps, whether it would not be better to use *bellows?* Make the experiment, and you will not repeat the question. When you have performed the artificial respiration for a few minutes, you make your observations on the child. Feel the cord, and you will sometimes have the satisfaction to find it pulsate. The best point for examination is at the very root of the funis, close to the abdomen. You sometimes feel pulsation there, when at the distance of an inch from the abdomen it cannot be perceived, the arteries being so contracted that they do not admit the entrance of the blood. Examine the thorax, feel the heart, and you may sometimes, through the ribs,

obscurely perceive its beating; observe the face, perhaps you find the cheeks reddening — the countenance forming — the lips quivering. When these marks of returning life are observed, pause a little, and frequently the child will be observed to make a spontaneous effort of respiration; a deep sigh is the first breath it draws; in twenty or thirty seconds it breathes again. Now, if on suspending the artificial respiration the heart continue to beat — the cord to pulsate — and the respirations to increase in frequency, further aid from the tube will not be required; but should the pulsation cease in the cord, and the sighs be heard no longer, then your operations must be resumed; and thus repeatedly as the case requires; at one time you try the natural powers of the child, at another you support the respiration by art. There is yet another practice proper in these cases, which is the use of the warm bath. Procure a capacious vessel to be always in readiness when you expect a still-born child; provide also a kettle filled with hot water and an ewer with cold; mix the waters and bring them to the temperature of 97° Fahrenheit, or perhaps higher, take care that the water is not so hot as to scald the skin. With your own hand you may judge of the temperature, particularly if you have been in the habit of using it thermometrically. Into this warm bath immerse the child, the face being kept above the water; and occasionally, by this warm bath some little respiration has been restored, even when artificial respiration has failed; I conceive this, therefore, to be a very valuable remedy. The object of the bath is to excite the system, and especially to procure the circulation of the blood. This bath, however, requires using with some science. Sir Anthony Carlisle, the obstetric *eulogist*, has found, that if he plunge a hedge-hog into water of the temperature of thirty-eight or forty degrees of Fahrenheit's thermometer, he may keep it submersed for thirty minutes, and on removal the animal may survive; but if he submerse it in water of ninety-four degrees Fahrenheit for eight minutes, it dies, so that the animal seems to drown much faster in warm water than in cold. Now granting this to be correct, and Sir Anthony is supported by a previous and analogous experiment performed upon the kitten by Dr. Haighton, which, as he ascertained, will drown sooner in warm than in cold water, this principle must be important in managing the bath for the child. When respiration and circulation are proceeding, the heat by exciting action tends to support the vital principle; but if neither circulation nor respiration proceed in the bath, the heat tends to exhaust and destroy. The practical inference I would draw from this, is very important; if you find, on immersing a child in a warm bath, that it neither breathes nor circulates, you ought not to keep it there, for in so doing, you would destroy; you may leave it in for half a minute, and then take it out and try the artificial respiration again; but if you find it is improving in the warm water, you may let it remain in the bath for five, ten, or fifteen minutes. If deemed proper, it

would be easy to execute artificial respiration while the child was in the bath.

There are other subordinate remedies which are not to be forgotten. Errhines you may put into the nose — snuff, for example; or you may rub the thorax, strike the nates, or introduce a little brandy into the stomach. For this purpose, put your tracheal pipe into the œsophagus, and, taking about a tea-spoonful of brandy into the mouth, impel it into the child's stomach through the œsophagus. Brandy given by the mouth in the usual manner may get into the trachea and produce inconvenience; wash the pipe before you insert it into the trachea. Never hastily despair of the means of resuscitation, — many a fœtus is laid aside as dead which, by a diligent use of resuscitants, might have been saved. A woman, run over by a stage, was carried into St. Thomas's Hospital, and died in a few minutes after admission; this woman was in the end of pregnancy. By my friend, Mr. Green, I was requested to assist in the Cæsarean operation. In thirteen minutes from the last respiration of the mother, the child was taken out. In fifteen minutes from the last respiration of the mother, I began artificial respiration. During fifteen minutes longer I continued it, ultimately resuscitating the child completely, and had due care been taken it would probably have been living still. Mr. Tompkins, of Yeovil, a gentleman formerly of this class, very accurate in his observations, used resuscitants for an hour and five minutes before obvious signs of life appeared, the child recovering however at last, and living for some time afterwards.

LECTURE XI.

BIRTH AND MANAGEMENT OF THE SECUNDINES.

We now proceed to speak of the birth and management of the Secundines — the Placenta and Membranes, in labours on the whole natural.

If the womb chance to be more than usually active after the birth of the child, it sometimes very promptly expels the placenta. More generally, however, after the child is come into the world, the womb reposes itself for fifteen or twenty minutes, after which contractions occur, and sometimes, though rarely, the placenta is completely expelled from the vagina; sometimes, and more frequently, it is pushed into the upper part of the vagina, or in part expelled from the uterus, so that it lies partially in both cavities; and sometimes it may be pushed down to the mouth of the uterus, so that at the os uteri the insertion of the cord may be easily felt. Thus expulsion of the placenta, more or less complete, is usually

attended with a discharge of blood of varying quantity, seldom, however, exceeding a few ounces, a gurgling noise perhaps indicating when the blood comes away; and this I rather mention, in order that, being on your guard, you may be prepared for the accident, not feeling needlessly alarmed when the hemorrhage occurs.

These contractions of the uterus, which, occurring after the birth of the child, expel the placenta, are of no small importance, and the effects which are produced by them may therefore be worth consideration; and first we may observe, that where the uterus contracts, in consequence of the diminution of the extent of its surface internally, detachment of the placenta is produced. Again, in contracting, the uterus does not merely detach itself from the placentar surface, but, as I have told you already, it more or less completely expels the organ, pushing it beyond the os externum into the vagina, into the mouth of the uterus, or into that part of the cervix uteri where it may be felt lying behind the disc formed by its mouth. To these two effects of uterine contraction a third may be added, scarcely less important — I mean the security which it gives against the risk of inversion. If the womb be in an uncontracted state, its cavity large, its parietes thin, its substance soft and flexible, and you, laying hold of the placenta, draw down without previous reflection, there is a great risk lest the uterus, to use an expressive illustration, should be turned inside out. But if the womb, as it ought to be when the placenta is taken away, is contracted in every direction — its cavity small, its sides thick, its substance hard — under these circumstances an inversion is not only improbable but perhaps impossible. So that it seems among the advantages arising from the contraction of the uterus we may enumerate, not merely the detachment of the placenta, and the exclusion of the placenta, but the security against uterine inversion which this contraction best affords. A fourth advantage not to be overlooked, derivable from uterine contraction, is that it diminishes the risk of hemorrhage from the womb. Into the placenta there are a number of bloodvessels shooting; those vessels, arteries, and veins, are of a very large capacity. Why is it, when you take away the placenta and lay all these vessels open, you have not always a large eruption of blood? Much may perhaps be ascribed to the concretions which form in the mouths of these vessels, and still more to the uterine contractions; for where the womb contracts, and when the fibre contracts, the vessels are contracted also; for the vessels ramifying among the fibres, these fibres when contracted around them, like so many ligatures, close the venous and arterial branches. I will not assert, for this is unproved, that if the placenta be withdrawn while the womb is in the uncontracted state, hemorrhage must always occur. Now and then, where the circulation is low and the vascular orifices are closed by sanguineous concretions, *abundant* hemorrhages may *not* be produced; but certain it is, that unless the womb be thoroughly

contracted, there is always a risk of bleeding; a risk which, as explained already, is very materially diminished by the contraction of the muscular fibres. For various reasons it is clearly very desirable, that after the birth of the child full contraction of the uterus should be obtained, for this contraction detaches the placenta, expels the placenta, secures the womb against the risk of inversion, and the vessels against the more formidable and fatal eruptions of the blood.

If you examine the womb, as ought to be your custom immediately after delivery, there are four very different conditions in which it may be felt; sometimes it is large and lax, and nearly as big as the adult head; and sometimes it is small and soft, not bigger than the head of a full-grown fœtus, and yielding like the breast under the touch; sometimes, in a third condition very different from the preceding, you find it small and rounded, and as hard as a piece of cartilage, or as the head of the fœtus; and sometimes again, you find it in a fourth and intermediate state, very hard at one moment, and very relaxed at another. In all these four conditions, which it may not be amiss to recapitulate, the womb may be found after delivery; large and soft, small and contracted, rounded and very hard, or contracted and rounded with occasional induration, and occasional pultification.

Those tangible conditions of the uterus are to be made out solely by examination above the symphysis pubis carefully instituted; and every scientific accoucheur ought to be able to determine with certainty in what condition the organ lies. You will find generally, on applying your hand above the symphysis pubis, feeling the uterus there, grasping it as felt through the abdominal coverings, that you may readily, especially if rounded and hard, determine the state in which it is. If, however, you find a difficulty in feeling the uterus, and no hemorrhagic symptoms occur, you may wait; and, by-and-by perhaps, examining a second time above the symphysis pubis, when the womb is more contracted, rounder, and more indurated, you may feel it obviously. Should you still seek the womb in vain, though desirous to ascertain what may be its condition, you may then pass two fingers, the first and second of the left hand to the mouth of the uterus, an operation easily accomplished, as the passages have been laid open by the child: and thus getting a bearing on the uterine mouth, you may throw the womb forward, and then undoubtedly, the hand being applied externally through the coverings, and above the symphysis pubis, the womb may be felt; for, in fact, it is thrown by the action of one hand into the hollow of the other.

Of these four conditions of the womb after delivery, remember there is one only which is to be looked upon as perfectly healthy and altogether desirable. The woman may do well under the three other states of the uterus, but this alone is secure; and I here allude to that condition of the uterus already mentioned, in which, like the head of the child, it feels contracted, round, and

permanently indurated, for it is this contraction of the muscular fibres which secures against the probable risk of flooding or inversion. If the womb be large and pulpy, — if, though contracted, it feel soft and yielding, — if, lastly, alternating its condition, it seems at one time soft and at another indurated; — although the woman may be perfectly well, and although no dangerous symptoms appearing, very active practice may not be required; yet you are to look upon the condition of the patient as at best uncertain till that permanent rounded contraction, assimilating the uterus to the head of the full-grown fœtus, be observed.

You will ask me, perhaps, whether there are any gentle means which you may employ in order to secure a contraction of the womb when torpid? Something may be done by the administration of a cordial — a table-spoonful of brandy, for example, with two or three table-spoonfuls of water may be given immediately after the birth of the child. Some advantage is obtained by suffering the uterus to expel the child by its own efforts in the way recommended. After the birth of the head, as a meddlesome midwifery is bad, do not, seizing the head, drag forth the body of the child, but rather leave the expulsion of it to the natural efforts; for the womb being stimulated in this manner to more complete contraction, you will find the exclusion of the placenta will become more easily accomplished.

It helps, moreover, this contraction of the womb to lay the hand above the symphysis pubis, to feel the uterus, to grasp it in the hand, but not so violently as to occasion pain, and to roll the hand about upon the bottom of the uterus; this rolling of the hand, and this irritation of the uterus appearing sometimes to operate as a useful stimulus to the womb. So that, by the application of these simple means which can do no injury, even if they produce no benefit, by the compression of the uterus — by the rolling of the hand — by allowing the child to be expelled by the unaided efforts of the uterus, the uterine fibre may be stimulated, and there is reason to believe that the susceptibility of the uterus may be augmented by the administration of some cordial, as soon as the child makes its appearance in the world.

Where the placenta is rudely and injudiciously torn away by the hand of the accoucheur, the worst consequences may be expected to ensue. Floodings, tremendous lacerations, inversions of the uterus, such are the effects of obstetric violence — ferocious and atrocious obstetric violence; that insatiate and gory Moloch, before whose bloody shrine so many thousands have been sacrificed, to be succeeded, in future years, by still more numerous victims. Observing these awful consequences resulting from the artificial separation of the placenta, Ruysch first, and afterwards Denman and Hunter, recommended, that in all cases after the birth of the child, the expulsion of the placenta, like that of the fœtus, should be committed to the natural powers; for, they added, "the same natural powers which are adequate to expel the child, are surely

adequate to expel the placenta also." There is no doubt that if our women, *ferino more*, unaided by art, were committed to their natural powers altogether, like the females of barbarous hordes, in the great majority of cases the placenta would come away; but experience is said to have shown, and from the decision of experience there is no appeal, that in some cases, when the placenta is left to be expelled by the natural efforts, fatal consequences occur. Many cases are said to have occurred, in which floodings have taken place, and some in which the placenta, long retained, could not afterwards be abstracted; and where remaining unexpelled for two or three days, under the procrastinated use of means to extricate it from the uterus, the greatest injury has been inflicted; so that the practice, twice brought to trial, once in Holland, under the authority of Ruysch, and once in this country, by the advice of Drs. Hunter and Denman, has now been laid aside, probably not without good reason. It seems, therefore, to be pretty well agreed among those who are competent to form an opinion, that though we are not to be injudiciously and rudely tearing at the placenta, it is necessary that some artificial assistance should be given; and the greatest and nicest, perhaps the most important of all the questions, in the management of a natural labour, is the discrimination of the moment at which this assistance ought to be interposed: shall we interfere immediately? shall we wait for an hour? or shall we delay still longer before the placenta is brought away?

By different practitioners different rules have been prescribed; and as they have their excellences as well as their defects, I shall briefly lay them before you. Some there are, and Dr. Hunter was of the number, who recommend that we should take our rule from *time*, and this has the advantage of being a rule of easy and exact application. Wait (they say) till four hours after the birth of the child. If the placenta come away before the four hours have elapsed it is well; if, on the other hand, it still remain in the cavity of the uterus, manual interference may become necessary. There are others who judge by the pains without any regard to the time at which the woman has been delivered; pains, they say, accompany the contractions; the contractions expel the placenta; the pains therefore indicate the time at which artificial assistance should be interposed. These practitioners, therefore, after delivery, seat themselves at the bed-side of the patient, refraining for one two hours from manual interference if no pains occur, but as soon as the pains commence, following in the track of Nature, our best instructress, they lay hold of the umbilical cord, and endeavour to bring the placenta away; nor is this rule to be despised. There are other practitioners who follow a very different rule, also not without its excellence; determining whether they shall or not assist the birth of the placenta, by the situation of the viscus without regard to the pains, and without regard to the time that has elapsed since the delivery. If, on examination, they feel

the placenta lying in the upper part of the vagina, and through the os uteri; and more especially, if they feel the union of the cord with the placenta, they do not hesitate to remove it; while, on the other hand, if the umbilical cord ascend high into the uterus, and no part of the placenta can be felt, they wait. Now, of the three rules here enumerated, on the whole I think the last is to be preferred. In ordinary cases, you can never err in abstracting the placenta, when lying, in a great measure, out of the uterus, while there is always risk in the removal of this organ when it lies in the fundus of the uterus; and not only a risk, but a difficulty. They are some, lastly, who, without regard to the situation of the placenta, without regard to the pains, without regard to the time that has elapsed since the delivery, determine whether they will assist or not the birth of the placenta by the feel and condition of the uterus, and though I am not solely guided by this indication, with me it has a great influence. Examining the uterus above the symphysis, and finding it is large and soft, or even contracted, yet pulpy, they consider that the contraction of the womb, so much to be desired, has not as yet occurred. If, on the other hand, feeling the uterus, they find it forming the much wished-for mass, globose and indurated; and not only so, but that on keeping the hand there for five or ten minutes, the induration remains permanent, they consider that a thorough contraction has taken place, and that the placenta may be removed in safety, whether it lie forth into the vagina wholly or in part. Not to dwell too much on single indications, I would recommend a practice, forming itself under the influences of all these considerations — a rule of composite order.

Before you even think of removing the placenta, it becomes your duty to ascertain whether another child be lodging in the uterus; for, as a general practice, it is always improper to remove the secundines of former children until those remaining in the uterus have been expelled. Rupture of the funis, suffocation of the unborn fœtus in consequence of the premature abstraction of a placenta perhaps common to both, not to mention those floodings which we shall hereafter contemplate, must in some cases ensue, where this caution is unwisely neglected; and you ought therefore to investigate this point with the nicest care, before the removal of the placenta be attempted. Again, in order to guard yourself against a grand error, which you may incur in early practice — the removal of the placenta too soon when the uterus is yet uncontracted, I would recommend you, by all means, unless there be more hemorrhage than ordinary, to wait for half an hour before you operate, for at the end of this time you will generally find that the womb has reposed itself, that its fibres are contracted, and that the placenta may be safely taken away. Before the placenta is removed, I would further advise you to examine with nicety what is the condition of the uterus; for, as observed already, the scientific accoucheur will always be able to decide which of

the four states before mentioned is the condition of the uterus; and if you find that the womb is contracted, globose, and indurated, you may extract the secundines with more confidence; but no flooding forbidding, you had better delay the delivery even beyond the hour, when the womb, whether contracted or capacious, is found to be soft and pulpy.

There is one other point which should be investigated before you remove the placenta, and that is the situation of this organ. I will not venture to assert that you may never remove the placenta after delivery, where the insertion of the funis cannot be distinguished, and when the body of the organ cannot be felt lying forth partially or wholly in the cavity of the vagina, but as a general practice, it is not good to remove this viscus unless these preparatory conditions exist. If you find the placenta lying so low that you may lay hold of its body, the half hour being expired, you may remove with promptitude; but perhaps you had better delay the removal, provided the placenta be still lying beyond the touch of the finger.

Here, then, are the four cautionary points which I wish you to remember. Before you abstract the placenta, ascertain always that there is no other child in the uterus. Wait for half an hour after the birth of the fœtus, no particular symptom forbidding; satisfy yourselves that the womb is permanently contracted; remembering that it is always desirable that you may feel the insertion of the funis, or the body of the placenta, before the viscus is taken away. I could wish that these cautions might be ever before the mind importunately and uncalled, presenting themselves to the recollection, like the captivating notes of some favourite melody; or to speak a language more generally intelligible, the no less captivating traits of some favourite face.

If agreeably to these rules you interfere in the extraction of the placenta at the proper moment, you will generally find that the removal may be easily accomplished as follows: — The woman placed on her left side, lay hold of the umbilical cord with your right hand, and the substance of the placenta lying forth, secure a bearing on it with the fingers of the left; having secured your hold, if there are pains, by all means wait for those and cooperate; for I have found in slighter difficulties, that in removing the placenta the pains assisted effectually, and perhaps that the placenta could not have been abstracted without them. If pains be wanting, I advise you to take advantage of the expiratory descent; the epithet is not, perhaps, inappropriate, for often with every expiration we find the cord descending a little, the placenta being by degrees pushed forward, so that if at each point of descent you prevent its retiring, by little and little the burden is brought away. Perhaps in many cases it may matter little in what direction you pull, though a man of good sense, knowing the axis of the pelvis, would wish to draw in a line, tending on the whole from the umbilicus to the coccyx. If you

find there is difficulty in abstracting the placenta, continually elevating your hold as the placenta advances, you should seize that part which is last emitted from the uterus, not continuing to grasp that portion which first escaped lest you tear it away. Do not *haul* out the placenta; do not jerk out the placenta; do not tear out the placenta, leaving unobserved one half of it in the cavity of the uterus. Do not lacerate and leave the membranes to form afterwards a receptacle for clots, or to alarm the patient by their unexpected appearance; *arte*, *non vi*, must as usual be your device; lead, coax, seduce. In this gentle, cautious manner, substituting gentleness and skill for force and brutal violence, you remove at once the placenta and the membranes; and this accomplished, I recommend you by all means to close your practice with the three following cautions: first, if there have been difficulty in abstracting the placenta, satisfy yourselves that *no inversion* of the womb has taken place; for practitioners have sometimes unconsciously inverted the uterus, leaving it in that condition, an accident which can never happen to you, provided you forbear to remove the placenta till the womb be contracted. You may, however, drowze sometimes at the bed-side, and in these torpid and forgetful moments, carelessly abstracting the placenta, inversion may occur. As, therefore, the neglect of this accident is of serious consequence in all cases, and especially if the secundines be withdrawn with difficulty, make it your rule to ascertain afterwards whether inversion have been produced. Of the characters marking inversion, we shall hereafter treat more largely, remarking, at present, that if in its natural position the womb may be felt in the usual situation above the symphysis; while it is wanting at this part, and forming, like the child's head, a tumour in the vagina, when inversion exists.

A second point to which I wish you also to give your attention is, that of ascertaining that you have got the whole of the placenta from the uterus, and this not by thrusting your fingers into the uterine cavity, a practice to which I must remain decidedly hostile, but by taking the placenta and laying it out upon a napkin, examining both surfaces, and raising the membranes so as to ascertain whether the placenta and the annexed involucra be complete. If any part be wanting, the cause of this deficiency should be ascertained; if the whole be there, then of course there is none remaining latent in the uterus. Tenacious of this caution, you will not, like some *omnipotent* practitioners, leave without knowing it one-quarter or one-half of the placenta in the uterus, the patient in some cases sinking, or becoming the subject of vomiting, flooding, and alarming pains, with, perhaps, the expulsion of the mass nine or ten days after the delivery was supposed to have been completed. Adhere, therefore, to this practice, so simple, so easy, and so beneficial to the patient, and when you have abstracted the secundines, satisfy yourselves thoroughly that the whole mass, fleshy and membranous, is away.

There is one other caution, a third point never to be forgotten, I mean the risk there is of bleeding both before and after, but especially after the abstraction of the placenta. Those bleedings, as some melancholy cases prove, may be incautiously overlooked by the accoucheur, and really not always with much blame. Though often more alarming than dangerous, these bleedings are never to be despised; to two women dead from these floodings, I have been called in one night. To you, however, provided you adhere to the rule of interfering at the proper moment, fatal hemorrhages connected with the birth of the placenta will rarely if ever occur, for they are highly improbable if the womb be well contracted. When these bleedings are external they can scarcely be overlooked; the patient feels, and perhaps the practitioner hears, the flooding as the blood falls upon the floor. But let it be remembered, that you may have internal hemorrhages, — all the blood collecting in the cavity of the uterus; known by an alarming tendency to deliquium, a womb that is bulky, and a copious eruption of the blood by gushes when the uterus is compressed. Remember, too, that when the patient reposes on a large bed, in the centre of that bed a pool of blood may form without you being aware of it; if, therefore, faintness occur, if the body become cold, the strength collapse, the respiration be small, or deep and spasmodic, examine the uterus, and if you find no accumulation there, inspect the hollow of the bed. Here, then, are three cautions which I would wish to impress indelibly on your minds and my own, there recapitulation being justified by their importance. After the placenta has been removed, satisfy yourself that the whole has been abstracted; ascertain, in the more difficult cases especially, that inversion has not been occasioned; and on all occasions be on your guard against those floodings, external, internal, or on the bed, often attended with little danger if the patient be well managed, but which, if neglected, will sometimes very suddenly and unexpectedly destroy; and let me add, that although floodings may now and then occur long after delivery, yet they are most to be apprehended within a few minutes after the birth of the child, not unfrequently, too, making their unwelcome attack when the accoucheur is about to retire.

My remarks on this topic, tedious perhaps, yet necessary, I may close, by pointing out in a summary manner the errors which, in managing the placenta, you are liable to incur.

To commence, then: I am afraid that some one, notwithstanding the cautions of the morning, will hereafter heedlessly remove the placenta when there is another fœtus in the uterus. He smiles — he bows — he retires — another child is born; — which of you all means to signalize himself by this dangerous folly?

I am afraid, again, that some one will be forgetting that, in ordinary cases when the placenta is taken away, he ought to ascertain whether the uterus be globose or indurated. Watch, therefore, and be careful that you never bring away the placenta with-

out first examining the condition of the uterus. With urgent earnestness, I recommend this caution. Lay your hand above the symphysis pubis, get into the habit of invariably doing this in all cases; till this is accomplished, your duty to the patient has not been discharged.

I hope that no one will needlessly thrust his hand into the uterus, yet I have my misgivings. I hope, after all I have said of the tearing, and lacerating, and sloughing of these parts, you will never *needlessly* have recourse to this barbarous practice. Some of my obstetric friends, and whose talents I esteem, fall into this error; they grate my ears by boasting how frequently they have carried the hand into the uterus, and with what facility the placenta has been removed; that this operation may be easily effected I have no doubt; that it is sometimes necessary I shall hereafter show; but depend upon it, if you do carry your hand into the uterus on every occasion to get away the placenta, some woman will die at last, and die the victim of your mismanagement; at this moment, perhaps, some amiable but ill-fated creature blooms the light and life of her admiring circle, who must hereafter fall an untimely sacrifice to some cruel and ruthless arm — which of you is the owner of this atrocious member? But I forbear to declaim. About three years ago, from the father of one of my pupils I received an anonymous communication to which his name would have been a graceful addition, complaining that, under my tuition, his son had acquired the dangerous habit of needlessly thrusting his hand up into the uterus. Now, I appeal to you all, as to your predecessors, whether it was in this school that he might learn to have recourse to these pragmatic and most dangerous practices?

The tearing of the placenta and leaving in the womb a portion unobserved is another error to which you are exposed; especially if instead of *seducing*, you *haul* forth the placenta. If in every case, you, as it were, seducingly allure away the placenta, the accident of tearing it can scarcely ever occur; but if you proceed with negligence and violence, large portions of the placenta may remain within the uterus.

To suffer the patient to flood unperceived, whether into the bed or the uterus, is another error against which you ought to guard; the majority of these cases ultimately do well, it is true, but I wish you to be prepared for the worst.

The inverting of the uterus, unconsciously at the time, and without observing the accident till hours afterwards, is another error to be deprecated. If the womb be inverted, upon observing it immediately you may soon replace it; but if it is not known within a short space, reduction becomes impossible. I suppose it would be difficult to find in the annals of midwifery one case where a womb has been inverted, and remained so for four-and-twenty hours, reduction being afterwards accomplished.

The womb, thin, flexible, is of easy inversion, especially when paralytic and softened from the loss of blood; in this condition of the uterus the placenta is not to be taken away.

The contracted uterus differs remarkably from that condition last described. In the one case the womb is capacious, its textures thin, its substance flexible; but here, where the womb is contracted, the cavity is small, the textures thickened, the substance indurated, the uterus hard as cartilage. Of the former uterus, inversion would be easy, but no inversion could occur here. You will observe, too, that where the womb is contracted in this manner, the placenta is detached from the surface, and it must be in great measure expelled from its cavity; and this is the condition of the uterus when the placenta may be safely removed.

Looking at the inner surface of the uncontracted uterus to which the placenta cohered, you find there is a number of large unclosed vascular orifices, yawning, as it were, destruction on the patient. This is the condition in which the vessels are, if you tear away the placenta before the womb is contracted, exhibiting the formidable openings at which the effusions of blood occur. But in the contracted uterus, if you look at the bloodvessels, you will find them all closed by the abbreviation of the surrounding fibre, as by so many ligatures, and this is the best preservation against hemorrhage; it is *Nature's tourniquet*, her system of living ligatures, which no art has imitated. You see, then, that it is not without good reason that I am so anxious, before you abstract the placenta, that you should secure the contraction of the womb.

Do not needlessly thrust the hand into the uterus; that is the voice that issues from this preparation:—he that hath ears to hear, let him hear it.

Do not needlessly thrust the hands into the vagina; is the voice that issues from this preparation: — he that hath ears to hear, let him hear it.

Do not needlessly pass the hand into the genital fissure; is the voice that issues from this preparation: — he that hath ears to hear, let him hear it. Ah! that violence of an ignorant and savage hand! After examining these preparations, tell me, is it too much to assert, that in obstetrics a thrust of the hand is more dreadful than a thrust of the bayonet? Could the field of Waterloo exhibit injuries more dreadful than these?

Such, then, are the general rules which I would prescribe for the management of that most important stage of parturition; I mean the birth of the secundines — the delivery, as perhaps by way of eminence, it has been denominated by our Gallic neighbours. When from large experience and much reflection you have of yourselves formed better rules of guidance, by all means, but not till then, let these now given be laid aside as superannuated and defective. Nothing can be more abhorrent from my wishes than to exercise over the mind any influence which does not emanate from truth and reason; be that far from both you and me! for there is not, perhaps, any intellectual habitude more certainly preventive of our progress in solid knowledge than that which leads a man indolently to neglect the exercise of his own observation and

reason, to adopt servilely the opinion of those who are gone before him. Observe for yourselves — think for yourselves. He is surely less than the least of all philosophers, one who is not worthy to be called a philosopher, who does not often inculcate these maxims. Think for yourselves, not arrogantly, not inconsiderately, not (if you please) invading those regions of thought which lie beyond the sphere of human understanding, but on topics within your reach, with observation and reflection, deep and broad, still think for yourselves, never burying in indolence that inestimable gift of nature, so much insulted and disparaged, — Reason; *lux lumenque vitæ, divinæ particula auræ;* — Reason, the mother of philosophy, and the brightest and noblest inheritance of the human species.

LECTURE XII.

PRETERNATURAL LABOURS.

The cases of preternatural parturition, in a view to our remarks upon them, may be commodiously separated into two orders, namely, those in which the operation of *turning* becomes requisite in order to bring away the child, and those cases in which this operation is not required; and we will, if you please, commence with the simpler cases, — those in which turning is not necessary to the child.

The preternatural cases not requiring the operation of turning consist principally of the presentations of the *feet*, the presentations of the *breech*, and those presentations which, of *mixed* nature, partially partake of the characters of both.

FOOT OR CRURAL PRESENTATIONS.

When the feet of the child are lying over the centre of the pelvis, the presentation is made out with certainty only after the os uteri has been thoroughly expanded, and the membranes have been broken, and the liquor amnii has been discharged. If at this time you examine with a moderate degree of attention, the feet, naked under the touch, may be recognised with facility; unless, indeed, with all-powerful ignorance or negligence you confound the hands and arms with the legs and feet, to which when swelled they bear some resemblance. Even before the disruption of the membranes, and the complete expansion of the os uteri, if you make an examination during the absence of pain, when the membranes readily recede under the touch, although perhaps the disc of the os uteri do not exceed the surface of a shilling; — if one or two fingers be passed into the os uteri, the

feet of the child may, I believe, be frequently detected; from examinations of this kind, however, it is better to refrain, lest the membranes may be prematurely torn.

When you have ascertained that the feet are lying in the mouth of the uterus, you next proceed to determine the proper moment at which the manual assistance of the delivery ought to be interposed — a point of the utmost importance. Mere manual operations are easy enough; a mere novice in obstetrics may often with facility abstract the fœtus under crural presentations; but to determine the exact moment at which this assistance should be given requires a nicety of judgment; and you will find, that by different teachers and practitioners different rules are prescribed.

Some practitioners there are who take their indications from the laxity of the softer parts, and the openness of the os uteri; and if they find that the mouth of the womb is wide open, and that the softer parts are thoroughly relaxed, so that they feel satisfied that no resistance will be opposed to the passage of the shoulders or the head, they then lay hold of the legs, and draw down and bring away the fœtus as speedily as may be; and on the whole, this rule is by no means to be despised. In general, where the mouth of the womb is expanded, and the softer parts are relaxed, the child, under the foot presentation, may be safely brought away.

By Denman and others we have been advised, in these cases of crural presentation, to take the indications for manual interference from a very different circumstance — I mean the elevation of the breech. When the breech is lying out beyond the external parts, they lay hold of the legs, and accomplish the delivery; but when the breech is lying above the brim of the pelvis, they wait until the natural efforts have pushed the nates to the outlet. The reason of this rule is twofold: in the first place it is said, that where the breech has passed the outlet of the pelvis, the head and shoulders of the child will generally come away with facility; and secondly, so long as the breech is lying above the brim of the pelvis, so long the umbilical cord will not be subjected to pressure; and so long, therefore, without danger to the child, you may wait, so as to allow of its further descent. When the breech is pushed beyond the external parts, and the cord is compressed in the vagina, unless the child be promptly abstracted it will probably die suffocated, much in the same manner as if, after delivery, you were to wrap it up in a blanket, or to throw it into water; and hence the necessity of a prompt abstraction from the pelvis.

There is yet a third indication by which some determine the moment of interference in crural presentations, and that is, the condition of the umbilical cord. If the cord pulsate strongly, it is said we may wait and trust to the natural efforts; or at all events, if we give any assistance at all, that assistance may be administered with much gentleness and little activity. If, on the other hand, the pulsation of the umbilical cord is becoming obscure,

if it is interrupted for a time, the child being still living, though in danger, then it is said we should promptly extricate the fœtus, otherwise, the circulation being weak and pressure on the cord continuing, the flow of blood along the umbilical vessels may be interrupted so long and so completely that the life of the child becomes extinct.

For myself, however, as on former occasions, I would recommend you to take the indication of delivery not from one of these circumstances singly, but from a combination of them. Called to a crural presentation, before you lay hold of the feet, and begin to draw down, ascertain, by a careful examination, whether the os uteri is open, and the softer parts are relaxed or not. If the mouth of the womb be closed in great measure, or if the softer parts are unusually rigid, you had better not draw down, for doing this, you will find, when you have got away the feet, that the head and shoulders cannot be abstracted; or should you extricate them, overbearing all resistance, you will bruise and lacerate the softer parts, and perhaps detach the head from the body. On the other hand, if you find the softer parts are thoroughly relaxed, so that they yield in every direction under the pressure of your finger, or if you find the mouth of the womb wholly or in a great measure open, so that the passage of the head and shoulders is not opposed, you may then be considered as so far justified in having recourse to manual assistance. I would not, however, have you lay hold of the legs, and draw down merely because you may find the os uteri expanded, and the softer parts relaxed. I would advise you further to observe the rule already prescribed by Denman and others, which is, that the manual operations ought to commence if the nates are lying in the outlet of the pelvis; and further, that they ought not to be attempted, provided the nates are at the brim; because in midwifery, unless there be a clear necessity for it, manual interference is improper; and this necessity does not exist when the breech is lying in the upper part of the pelvis, as the umbilical cord is not subjected to pressure, and neither the mother nor the fœtus incurs much risk.

In determining when you should give your assistance in a delivery of this kind, I would recommend you further not to neglect the state of the umbilical cord, a circumstance of considerable importance. If you find it pulsating strongly, you may wait a little longer, even if the nates are beyond the external parts, for they may come down somewhat lower, and the delivery may be further facilitated; but if you find the pulsation interrupted, then, as it is clear the action of the heart is disposed to cease, the sooner the fœtus is brought away without injury to the mother the better.

These are the principal considerations, then, to be carefully revolved in mind before you lay hold of the feet and extract. Beware of laying hold of the feet and drawing without reflection, merely because those parts are lying within reach; before you

draw, ascertain that the os uteri is expanded, and that the softer parts are thoroughly relaxed. Before you draw, let the nates be pushed down to the outlet of the pelvis, or a little beyond it; and where the umbilical cord is pulsating strongly, be less prompt to interfere, recollecting that it is necessary to be more speedy in your operation, if the pulsation be disposed to cease.

The method of giving assistance in crural presentations is exceedingly simple; and indeed, if you adhere to the rule of not interfering too soon, you will rarely find any difficulty. If the feet of the child present, and the abdomen is lying upon the back of the pelvis, you may assist in the extraction of the child as follows: The nates lying in the outlet of the pelvis, or beyond the external parts, you may wrap a handkerchief or napkin round the limbs, laying hold with the interposition of this texture as the grasp becomes more secure. Your hold thus obtained, you draw down, swaying the child a little from side to side, forward and backward, or obliquely, according as the one or other movement facilitates descent; in so doing, being very careful not to injure the perineum. When the trunk of the child is passing the pelvis, you may slide up one or two fingers, first on the one side, and on the other, promptly, but not with hurry; and if you find that one of the arms (a rare accident) is disposed to descend with the body, taking the hand, you may draw the arm forth, and lay it flat and close against the side. If you neglect to perform this operation, the arm may start out at an angle over the brim of the pelvis, obstructing the descent of the child; or should the difficulty be borne down with impatience and violence, fracture or contusion may be produced. Further, (and I consider this hint to be of no small importance,) when you are drawing the thorax through the cavity of the pelvis, I would recommend you again to slide one or two fingers into the pelvis, to feel for the arms, and to take care to press them, as far as may be, upon the promontory of the sacrum; for it sometimes happens, when the child is descending, that one or both arms become fixed behind the head between the occiput and the symphysis pubis, so firm an obstruction being produced in consequence, that you are labouring, perhaps, for ten or twenty minutes before you can get the arm away.

With this precaution, then, having at length brought the axillæ to a level with the external parts, the arms being deposited in the back of the pelvis, you will find that you may extricate them easily enough, nor must this operation be neglected. In many cases, indeed, if the pelvis be large and the head small, the arms and head might be brought away together; not, however, without difficulty, for thus combined, they occupy much room, a corresponding delay and compression of the softer parts being produced. In general, therefore, it is better to extricate the arms before the head; and for this purpose, the axillæ being brought down to a level with the external parts, you throw the body thoroughly out of the way, placing it in the attitude most favourable for the

introduction of the fingers, and the intended descent of the arm; and then laying all the four fingers if practicable, if not, one or two only, on the bend of the elbow, you bring down the arms resolutely, but without violence, with a sweep over the face. Be careful to lay your fingers into the bend of the elbow; for if you plant one or two fingers on the middle of the humerus, there will be a risk of fracture, — at this early age produced by slight causes. Having got one arm down again by a similar operation, the other arm is in turn extracted; nor does it matter which of the two be first extricated. Time, however, must not be futilely wasted by indecision, nor must you amuse yourselves by attempting the extraction, first of one arm, then of the other: remember the apologue of the frogs — while you are fooling, the child is dying. Usually, when the arms have been extricated in the crural presentation, provided you have observed the rule of waiting till the os uteri is wide open, and the softer parts are thoroughly relaxed, and the nates have been pushed to the outlet, the escape of the cranium becomes easy: now and then, however, if the pelvis is small or the head large, or if you have unwisely begun to operate, when there has been some little rigidity of the softer parts, in abstracting the head there may be some difficulty. Now your first object, in these cases, should be to acquire a power over the positions of the cranium; and for this purpose, with both hands bearing on the shoulder, you put one finger (if practicable) on either side of the occiput, and with one or two fingers of the other hand you act upon the chin. If the head be in the brim of the pelvis, the occiput should lie toward one side and the face toward the other, so that the long length of the head may correspond with the long diameter of the superior aperture, the chin of the child, where this may be accomplished, being brought upon the chest, so that of the three longer axes, the shortest may bear on the long diameter of the brim, the head in this position occupying least room. This effected, draw down in a line tending from the navel to the coccyx — that is, in the axis of the superior aperture, swaying the head however a little from before backwards, till it approach the outlet, when the face should be laid on the sacrum, and the occiput on the tubes, the chin still resting on the chest, so that the long measures of the head being again put into correspondence with the long diameters of the aperture, the cranium may emerge commodiously.

In crural presentations, we sometimes find that the abdomen of the child is placed in front of the pelvis, instead of lying on the back; and there are two ways in which the case may be conducted. First, without changing the situation of the abdomen, *mutatis mutandis*, you may extricate the fœtus according to rules already prescribed. On the whole, however, I think you will find that the fœtus does not descend so commodiously when the abdomen is lying anteriorly, as when it is placed on the back of the pelvis; and, more especially in this position, much difficulty is to be

apprehended in abstracting the arms, shoulders, and head. Hence in crural presentations, when the abdomen lies anteriorly, it is on the whole deemed better to throw the belly of the child to the back of the mother, as soon as the operation can be performed, and on different occasions this may be attempted. Thus you may endeavour to place the abdomen on the back, after you have drawn the head and arms into the cavity of the pelvis; but you will soon find it is very difficult to accomplish it at this time, as the head and arms become impacted: or you may attempt this operation as soon as you have laid hold of the feet — succeeding sometimes, though you may fail not unfrequently, in consequence of not possessing sufficient command over the body of the cord within the uterus. As on so many occasions, so here, μετρον αριστον, the turn will be best accomplished when the thighs make their appearance, the nates lying just below the superior aperture, and the head, shoulders, and body above. As soon therefore as the nates approach the outlet of the pelvis, the thighs lying within your grasp, the turn should be attempted: for this purpose, laying hold of the thighs close upon the outlet with the left hand, and spreading on the back when practicable the fingers of the right, you draw the child backward upon the sacrum, so as to bring the axis of its body nearly on a line with the axis of the brim, (always cautious, however, lest you injure the perineum,) and preparation thus made by the co-operating of the two hands with gentleness, yet resolution, you change the situation gradually, as the parts may bear transferring, the abdomen of the fœtus over the side of the pelvis from the front to the back.

In the management of the crural presentations, the following are the principal errors against which you ought to guard. The mistake of the arm for the leg — the extraction of the fœtus without previously ascertaining whether the moment for interference is arrived — the neglecting to turn the abdomen upon the back of the pelvis — the forgetting, when one arm is disposed to descend with the trunk, to lay this arm flat along the flank of the child. You may, too, err as the head descends, in suffering the arms of the fœtus to become impacted between the occiput and the symphysis pubis — or in using such force as may contuse or tear the softer parts, or fracture the humerus of the fœtus, or the clavicle, or the vertebræ of the neck. *Festina lentè* should be your rule: hurry is inadmissible; a cautious haste is proper. In general, when the cord pulsates strongly, you may proceed more leisurely; when feeble, more promptly. To the security of the mother, the life of the fœtus must always, if necessary, be sacrificed. If there are pains, so much the better; but do not, when once the cord is under pressure, delay the delivery by awaiting the pains, for the death of the child will be the result of procrastination.

BREECH PRESENTATION.

In preternatural cases, you will sometimes find the breech lying on the centre of the pelvis, on the whole a case more favourable than the preceding, as the child is oftener born alive under the presentation of the nates than when the feet present. When the breech of the child presents, even before the membranes are broken, if you are skilful in examination, you may form a probable opinion of the presentation, by carrying the fingers to the os uteri during pain, waiting with the fingers in the os uteri till the womb relaxes, and then, through the yielding membranes, examining carefully the characters of the nates. Early examinations of this kind, however, I do not recommend. They lead to early interference with the membranes, and might, with rudeness, occasion a premature disruption, — very undesirable in cases of this kind, because, for reasons already assigned, in preternatural labours, the rupture of the involucra should be delayed as long as may be. Certainly, the best time for making out this presentation is later in the labour, when the os uteri is expanded, and the membranes have been ruptured, and the liquor amnii has been discharged: lying naked under the touch, it may then be felt with facility — its roundness, its softness; the cleft between the thighs, the genitals, the anus, and portion of the thighs. In male children, you will feel the scrotum generally like a fluctuating bag, not to be punctured. In presentations of the nates, the meconium frequently comes away.

The nates presenting, you are not hastily to infer that manual interference is necessary. Nor are you rashly to thrust the hand into the pelvis to lay hold of the presentation, or to thrust up the blunt hook or forceps, or to have recourse to any artificial measures — as usual a meddlesome midwifery is bad; interference is justified by inexorable necessity only; and in general, the same powers which detrude the head in natural labour, will also, and perhaps with greater facility, push the nates to the outlet of the pelvis; in these cases, therefore, a principal duty of the accoucheur is to wait: put your hands into your pockets, and not into the vagina. *Pazienza*, the familiar ejaculation of the Italian, may be properly adopted by the accoucheur. Some practitioners, when the nates descend, are accustomed to place one or two fingers over the bend of the thigh, right and left, alternately operating as with a hook, carefully drawing during the pains; a practice in which perhaps there is little harm, if cautiously effected; but really, on the whole, adhering to the general rule, you had better abstain altogether, unless interference be obviously required. By the natural and unaided efforts, then, the nates may generally be pushed upon the outlet, and when this has been accomplished, as the cord is liable to compression, assistance becomes necessary. For this purpose, grasping the hips, co-operating with the pains,

you may draw carefully down; and, as you draw, (the abdomen of the child lying on the back of the mother,) you carry the loins of the fœtus forward, and towards the mons veneris, so that the legs may of themselves drop forth when the case becomes footling. As a general rule, it is good not to pull forth the legs, indeed not to meddle with them at all, but to leave them drop forth spontaneously, for fractures are to be feared.

It sometimes happens, under the breech presentation, that instead of lying behind, the abdomen is situated anteriorly, or to the one or other side, all which is easily ascertained by examining the situation of the thighs and genitals. Now, when the abdomen is lying in front, or in the lateral position, on the whole it seems to be a good practice, as soon as may be, to throw the abdomen of the fœtus on the sacrum; for in this position, as observed already, the head and shoulders will be more easily extricated.

This rectification may often be accomplished without difficulty; and the proper moment for attempting it is, when the nates have reached to the external parts. A rectification, when the nates are at the brim, I would not recommend, because to effect it then, you must carry the hand into the uterus; an operation to which, as you know, a good accoucheur is exceedingly averse. Neither should I advise you, before rectification, to wait till the feet are escaped from the pelvis; for when the shoulders are in the cavity, the arms frequently become impacted between the bones of the pelvis and the head, and the whole mass becomes so firmly fixed, that the turn cannot be effected. For the purpose of rectification, perhaps the most favourable moment is, when the nates are pushed thoroughly down to the outlet, and the hips begin to appear. Grasping the part with ease at this time, by little and little, with well-mixed gentleness and resolution, you endeavour to transfer the abdomen to the back of the uterus, and failing in this attempt, you take the case as you find it, throughout the parturition, suffering the abdomen to lie in front.

As the head of the child is not always expelled by the unaided efforts of the uterus, so also the descent of the nates may be obstructed, more especially if the breech be large, or the pelvis small; so that the aids of the accoucheur become necessary. Of the various helps to which we may have recourse in these cases, one of the simplest consists in the use of the fingers, as a blunt hook. Into the bend of the thigh one or two fingers are inserted, and drawing down, you co-operate with the pains, performing the operation alternately on either side, right and left, till the nates at length reach the outlet of the pelvis. To co-operate with the pains is of the utmost importance; without their help you will draw with little effect. If you have not power enough with the finger, you are advised to make use of the blunt hook; an instrument which, like an ignorant, meddlesome accoucheur, has no feeling for the mother or her offspring, and to which therefore I am exceedingly averse. In careful hands, indeed, it might be of service; but in hands coarse and rough it may prove a most

destructive weapon, even tearing the limb from the body. Should this instrument be necessary, let two fingers be placed over the fold of the thigh, and, under direction of these fingers, pass the hook into the same situation, drawing down afterwards, as always, with mingled gentleness and firmness, so as to bring forwards the hip somewhat; this accomplished, you operate on the other side in the same manner, alternately acting on either hip, till the nates make their appearance at the outlet, careful always to avail yourselves of the co-operation of the pains. Preferable, however, to this method is the abstraction of the child by means of a handkerchief, repeatedly tried, and which I find, on the whole, to succeed very well, though it requires some dexterity to use it. For this purpose take a handkerchief (if silk, it is preferable), and sliding it up, on the outer surface of the hip and thigh, pass it over the bend of the thigh, and bring it ultimately down afterwards between the limbs; adjusting it so that it may lie in the fold formed by the limb and the abdomen, not resting on the middle of the femur, lest it occasion fracture. The handkerchief applied to the one in this manner, in the same way a handkerchief may be applied to the other, and then the two together, giving a complete command of the parts, co-operating with the pains, you may draw down the nates to the outlet. There is yet a fourth mode in which the descent may be assisted, and that is by means of the forceps, as explained in a former Lecture. Taking one of the blades of this instrument you cautiously slide it over the flanks of the child, afterwards with caution and apposition applying to the opposite flank the other blade, in these cases securing the nates with the forceps, just as in ordinary cases you might seize the head. If you use the forceps with violence — ferocious, atrocious violence — you may inflict much injury, damaging the abdominal viscera, breaking the osseous structure of the pelvis, for you have choice of mischief; but if you proceed with gentleness, you may proceed with safety, the security and success of the instrument turning entirely on the way in which it is employed.

But it happens sometimes, when the nates are very large, or the pelvis is very small, that none of these modes of delivery will succeed. The fingers, the blunt hook, the handkerchief, the forceps, all have been tried without success. In this difficulty what is to be done? In cases of this kind, and in these cases only, you are justified in sliding up the fingers, and bringing down the feet, exchanging the presentation of the nates for the crural. I have said it is in these cases only where you cannot bring down the breech otherwise, that you are justified in having recourse to this operation; for, as a general practice, though adopted by some, it should, I think, be reprobated for two good reasons; first, because more children are born alive under the breech, than under the crural presentation; and, secondly, because where, in this way, you bring down the feet, it is necessary you should carry your hand into the cavity of the uterus. Now, over and over again, not however too often, I have told you that such

practice is to be condemned; and if, in defiance of warnings, any one of you still addict himself to these malpractices, let him take the consequences; on his head be her blood! my hands are free, whatever befal the patient. Do not draw down the nates unless dangerous symptoms require it, or unless the womb have been in action for twelve or twenty-four hours after the discharge of the liquor. If the cord pulsate strongly the child is in no danger; if there have been no pulsation for an hour it is dead. In neither case need you accelerate the birth. If the pulsation of the cord begin to fail, this is an argument for interfering, provided, without the smallest risk to the mother, the nates may be brought away. These remarks may meet the interrogatory, when ought we to interfere?

The grand errors to which you are obnoxious in the management of these cases are, I think, the following: Making a careless examination, you may confound the nates with the facial presentation, like my friend, whose instructive error I formerly recorded; — meeting with a breech presentation, you may deem it your duty to draw the breech towards the outlet without further consideration; remember that this practice is erroneous, and that, in most cases, the breech will descend of itself, without the help of the accoucheur. To draw down the legs without need, converting the presentation of the nates into that of the feet, is another great error against which you have been forewarned; remember the risk of lacerating the genitals, and the danger of destroying the child. To use force in the delivery is a very fatal error — *arte, non vi;* contusions, lacerations, fractures, death, such are the results of force; a disposition to violence is your evil genius, and wo be to the woman whose accoucheur is haunted by it!

MIXED PRESENTATION.

Among the preternatural cases we sometimes meet with mixed presentations, and on these I shall next remark. Sometimes one leg only presents, sometimes the knees; but if you thoroughly understand the management of the breech and the crural presentations, according to the rules just prescribed, these cases of mixed character are very easily managed. The knees presenting, suffer the uterus to act of itself; and the legs descending, the feet will protrude, — what was a presentation of the knee becoming crural, so that no peculiar practice is required here. If the presentation be of a single leg, I believe, on the whole, your best practice will be to wait, as in the breech case, giving a fair trial to the natural efforts, which will most probably push the nates to the outlet of the pelvis; you may then grasp the hips, as in the presentation of the nates, and the rest of the delivery may be easily accomplished.

LECTURE XIII.

DIFFICULTIES IN PRETERNATURAL PRESENTATIONS.

In the abstraction of the child under the crural presentation, it sometimes happens that unusual difficulties occur, when the *abdomen*, or the *arms*, or the *head*, are brought through the pelvis; and to the consideration of these difficulties I shall proceed.

From air, the abdomen is sometimes enlarged considerably, the bowels being tympanitic; rarely, however, without a putrescence of the fœtus, indicated, perhaps, by the desquamation of the cuticle and other changes of those parts which lie under the eye. Lowder once met with a case in which the peritoneum of the fœtus contained a gallon; and a gentleman showed me a fœtus whose abdomen contained two or three pints, that had accumulated in the urinary bladder, the possession of which I owe to his liberality.

Meddlesome midwifery is bad. When the abdomen is enlarged, it does not follow that active operations are necessary. Though the fœtus in Lowder's case contained a gallon of water, it came away unopened; the pelvis may be large, the powers may be great, the fœtus may be yielding; co-operating with the pains, careful not to lacerate the perineum, (the part most in danger,) carrying the fœtus from the sacrum towards the abdomen of the mother; humouring, leading, you get the child away. When, however, the pelvis is small, or the parts are rigid; or the abdomen bulky in the last degree, or the pains are feeble, reduction of size may become requisite. If there be dropsy, the swelling must be punctured; if inflation, perhaps the abdomen must be laid open more extensively: but accumulated gas can, I conceive, but rarely require the operation. That a child is dead, we may presume when the cord is flaccid and cold for an hour or more without pulsation; that it is dead, we may infer with certainty when the body has begun to decay. In general, with dead children only can it be justifiable to lay open the abdomen when the enlargement is gaseous. The blood chills and curdles at the thought of tearing out the intestines of a living fœtus. By the people of England — the censor and monitor of nations — wild beasts are caged, but, worse than these, the accoucheur, meddlesome and violent, yet responsible to none, has been unwisely let loose upon society, with all his instruments of destruction about him.

When bringing the child into the pelvis, you ought to be very cautious to keep the arms in the back of its cavity, and as near to the face of the child as may be. Where this rule is neglected, however, and sometimes from other causes, the arms may become fixed in the pelvis, and most frequently between the symphysis pubis and the head. In difficulties of this kind, it ought to be

your first endeavour to extract those arms in the ordinary manner, — the different parts of the operation, however, being performed with more than ordinary nicety and energy ; thus you bring the axillæ to a level with the external parts ; you throw the body thoroughly out of your way, — an operation of much importance, at the same time giving it that position which may favour the descent of the arm athwart the face. Then placing all your fingers on the arm, about the bend of the elbow : for in so doing you obtain a forcible bearing there, provided the obstruction is not unusually great, you may bring down the arm with tolerable facility. But what is to be done in those more difficult cases, where attempts of this kind fail ? I conceive the only remaining recourse is to lay open the cranium with the perforator, when the arms will become liberated by the collapse of the bones. This operation, however, can never be necessary till you have ascertained, by repeated well directed attempts, that extrication by the fingers is impracticable. This operation, too, can never be necessary till the child is already dead, — the death being easily ascertained by the coldness, flaccidity, and, above all, the total cessation of the pulse in the cord, which lies immediately under the touch. To perform this operation take this instrument, the perforator, — unfortunately of too easy use, — and planting two fingers on the occiput, in the way of a director, perforate the cranium ; and afterwards separating the blades, enlarge the opening as much as may be, in the manner here demonstrated. This accomplished, passing the crotchet into the cranial vault — moving the instrument in every direction, lacerate the membranes and pulpify the brain ; so that, soft as panada, it may readily issue at the opening ; when you will generally find, on pulling with the crotchet, that the head descends without previous abstraction of the arms : though on the whole, perhaps, it is better, pursuing the general practice, — first to extricate the superior extremities, and then to bring away the head.

In the abstraction of the head, in these cases, sometimes unusual difficulties occur, divisible into four classes ; those, I mean, in which the obstruction arises from an unfavourable position of the head ; those cases in which it is produced by a slight deficiency of room in the pelvis ; those cases in which the deficiency of room is more considerable ; and those cases, lastly, rare in British and well-conducted midwifery, in which the head is pulled away from the body, the cranium lying detached in the cavity of the uterus.

Where the pelvis is small, or the head large, or the practitioner is unskilful, it sometimes happens that the abstraction of the head is attended with much difficulty, in consequence of its unfavourable position. In speculation, cases of this kind might be multiplied, but, in practice, they may be reduced to three principal varieties, with all of which you ought to be acquainted. When the head is at the outlet, the face and occiput lying on the sides of the pelvis, the chin may lodge on one set of sacro-sciatic ligaments, and the

occiput on the other. In cases of this kind, if the pelvis be large, or the cranium small, or the uterine efforts frequent and powerful, the child may escape notwithstanding; but if the pelvis be small, and the head large, not understanding the nature of the difficulty, you may go on pulling till you actually tear the head from the body; whereas, if you turn the face into the hollow of the sacrum, and the occiput to the symphysis pubis, drawing the chin a little downward and forward upon the chest, the whole difficulty vanishes at once, and the head passes easily enough. Again, when the head is at the brim of the pelvis, it happens sometimes that the chin of the child lies over the symphysis, and the occiput over the promontory; the long length of the head lying over the short length of the brim; so that, unless these lengths be greater than ordinary, the head cannot be brought away. Understanding the nature of these difficulties (easily ascertained by examining the position of the body, which lies through the outlet, under the eye of the operator), to remove it, in some cases, is by no means difficult, provided the accoucheur be resolute and dexterous. Grasping the body with the left hand, and then conveying the abdomen of the fœtus gradually to the back of the pelvis, acting on the head through the intervention of the neck, you endeavour to turn the chin to one side. In doing this, however, as the tender compages of the neck may suffer from contusion, if the bearing there be too forcible, it is better, if practicable, to lay the fingers of the right hand on the side of the cranium, and with well-directed pressure there, to assist the movement of the face to the side, the two hands mutually co-operating. Should rectification, however, be impracticable, by gentle means you may then endeavour to abstract the head by raising the occiput, and depressing the chin upon the chest; so that, of the three longer axes of the head, the shortest, little exceeding four inches, may be brought to bear upon the short diameter of the brim. In this position, if the pelvis be capacious, the head may descend, with the face throughout the labour upon the symphysis pubis, or, if delivery cannot be accomplished in this manner, you may then lay open the cranium at the occiput. This tremendous and heart-sickening operation, however, can never be necessary in these cases, till the fœtal life is extinct. 'Thou shalt do no murder!' These words cannot too often tingle in obstetric ears.

The passage of the head is sometimes obstructed in consequence of your not drawing in the axis of the pelvis, when the cranium is at the brim; and as this is an error which you are very likely to commit when off your guard, I am the more anxious to impress it indelibly on the mind. The head perhaps is in a position favourable enough to the passage of the superior aperture; the occiput lying on one side of the pelvis, and the face upon the other; but if the head be large, and the pelvis small, and I am seated near the feet of the woman, consoling, encouraging her, of course, in drawing the child, I urge it downwards and forwards on the sym-

physis pubis. Under these circumstances, if the head be small, or the pelvis large, the cranium may pass notwithstanding; but if the head be large, or the pelvis small, I may draw with great force, yet the head may not be brought away. The whole difficulty is of my own making, it arises from my drawing out of the axis of the brim. Let me quit the feet and approach the loins, let me draw in the axis of the superior aperture downward and backward towards the coccyx, careful not to injure the perineum, the head comes away easily, and safely enough. An unlucky case! — an unfortunate case! Like the two Amphytrios in the comedy, Misfortune and Mis-management (excuse the levity) are so like each other, that their nearest acquaintances cannot always distinguish the one from the other.

In bringing away the head of the child, again, you have sometimes to contend with difficulties at the brim, arising most frequently from want of room between the front and back, to the consideration of which we will next proceed.

Eight or ten crural presentations, with deficiency of room at the brim, have fallen under my notice — the want of space being ascertained in these instances, not by nicely measuring the pelvis, but by the detention of the head at the superior aperture; notwithstanding the position was favourable, and a full abstractive force was employed. When the feet are presenting, and the head is lying in the brim, the body being thrown out of the way into a commodious position, a dexterous operator might, I have no doubt, apply the longer forceps or even the lever to the head of the fœtus, and draw down with great effect. Steel, however, like the nerves of a rude accoucheur, is apathetic, and has no sympathies. The steel of the instrument-maker is sometimes as fatal as the steel of the armoury—and Laundy and Perkin may perhaps vie with each other. In difficulties of this kind your instruments are not in general needed, and therefore I conceive ought not to be employed. The delivery in many cases may be effected as follows:— Availing yourselves to the utmost of your knowledge of the forms of the head and the pelvis respectively, agreeably to principles so often stated, you place the head at the brim, with the face and occiput in the sides of the pelvis and the chin upon the chest; careful to draw in the axis of the brim, that is, in a line extending from the navel to the coccyx.

To secure the command of the head when practicable, you place the two fingers on the chin, the rest of the hand bearing on the shoulders and chest in front — while the other hand, resting on the shoulders and chest behind, you pass a finger as high as may be on either side the occiput, obtaining a bearing on the child. The child thus secured, you request an assistant to take his place at the bed-side, near the loins of the patient, and, with the interposition of a cloth, grasping the body of the fœtus, to draw obsequiously under your direction. These preliminaries observed, when a pain occurs you draw down in co-operation, — perhaps swaying the

body a little from front to back, careful of the perineum, however, — till the head, brought to its bearing, then, you say to your coadjutor, Stop— lie on the pull — let us suffer the head, under moderate compression, to mould itself — let us wait for another pain, look at the countenance — count the pulse — reflect : — after pausing in this manner for one or two minutes, during a pain, if there be any, you draw as before, advancing the head a little further, and again pausing, with the same caution as before, allowing the head to become further moulded and compressed. Proceeding in this manner, pulling at one moment, pausing at another, you gradually work the head through the brim, when further difficulty does not usually occur. As the head may slip suddenly through the brim, be prepared to relax as suddenly when pulling, or the head may dash through the outlet and tear the perineum. Decapitation will be the effect of sudden pulling or jerking; but if the cranium be a little softened by putrefaction, you may, without rupturing the neck, exert in a gradual manner a force so great, that the vertex opens and the brain escapes. These higher degrees of force, however, in general are neither safe nor justifiable ; the safety of the mother is paramount, and is better secured by the use of the perforator. The birth of the child, though not to be hurried, must not, however, be needlessly procrastinated, as the cord is under pressure and death must ensue. Under the best management, most of these children are still-born.

In higher degrees the pelvis may be contracted, when the abstraction of the fœtus must be attended with difficulties still greater, to be surmounted by laying open the cranium, — the operator proceeding in the method before described. When the head is laid open and the brain has been pulpified, frequently the fœtus descends with facility, the cranial bones becoming collapsed. Notwithstanding this reduction of bulk, however, the descent of the head may still be impeded, when it becomes necessary to observe the following cautions: — Make the opening into the cranium as capacious as may be ; by the action of the crotchet, diligently employed, let the cerebral mass be pulpified with more than ordinary care ; in drawing, place the basis of the skull parallel with the symphysis pubis, and (which you may easily do) bring down the occiput as the most depending part. The cranium here exhibited to you consists of the facial bones and basis, with the bones which form the upper part in a state of collapse ; though thus reduced in size, these remains of the head, when placed with the basis parallel with the plane of the brim, nearly fill the aperture and pass with some difficulty, as you will readily perceive; but you perceive it drops readily through the pelvis, when the basis is placed parallel with the symphysis. If the basis lie against the symphysis, the face being the part most dependent, the facial bones and neck, a large mass, must pass the contracted pelvis together ; but if, as advised, and as indeed you will find most easy, the occipital bone be drawn down by the crotchet, the facial

bones will pass the pelvis alone, the occiput and neck of the child descending through the contracted pelvis in one mass, of bulk by no means considerable. Before you operate, the death of the child may be known by the continued want of pulsation at the root of the cord, not to mention the desquamation of the cuticle, and the putrescence of the limbs; and I may repeat a remark made in an earlier part of the Lecture, I mean that it never can be necessary to perform this horrid operation while the fœtus is alive.

The decapitation of the fœtus is not, I think, a common occurrence in well-managed British midwifery; but in a few rare cases, in general pehaps ill-conducted, the head becomes detached from the body; and this constitutes the fourth difficulty of which I proposed to treat. To get the command of the head, is in these cases the principal difficulty; and different instruments contrived for this purpose are lying on the table before you. The courtly St. Amand, I think it was, contrived a net to inclose the head when in utero. I am not sure that he called his invention the obstetric fool cap, but the designation would not be very inappropriate. Spreading it over your fingers, you carry it into the cavity of the uterus, *if you can;* in doing this, you avoid bursting the womb or vagina, *if you can;* there is always danger, and here you have choice; then, having got thus far, you are to lay the cap over the child's head, *if you can;* ultimately, by means of this invention, abstracting the head, *if you can.* This inauspicious impedimental — "if you can," throughout the operation meets and embarrasses you at every turn. The rats, in council, resolved that some measure should be taken to secure them from their arch-enemy: an orator, garrulous and much applauded, conceived it would be advisable to append to her neck a bell, — silver and chased of course, and of a form at once classical and elegant; ay, *if you can*, exclaimed a quadruped, a Phocion of the assembly, and demolished the orator. By Levret, the instrument here exhibited was contrived; its structure and action I here demonstrate. Smellie's improvement I now hold in my hand; it admits of more ready application to the cranium, being more obedient and obsequious to the operator. By Gregoire, an instrument probably preferable to either has been contrived. Bearing on the firm margins of the foramen magnum occipitale, this instrument, properly applied, gives a secure hold of the head; nor do I think that the annexation of some two or three vertebræ to the head, would preclude the introduction of the blades, nor would it be difficult, if necessary, to pull these vertebræ away by means of a proper instrument.

A meddlesome midwifery is bad. When by mismanagement or otherwise, the head becomes detached from the body, the unaided efforts of the uterus will sometimes push it away; and, therefore, unless the contracted state of the pelvis show that such hope is vain, these efforts should be fairly tried. When, however, the

detached head is to be abstracted by the accoucheur, he may first endeavour to fix it in the brim of the pelvis by well-directed pressure from the hand of an assistant, applied above the symphysis pubis; and then taking a large, strong perforator, like that here exhibited, he may either enlarge the foramen magnum, or make a large opening through the occiput, abstracting the brain at the aperture, afterwards drawing down by the crotchet, — the head readily descending after its bulk has been reduced. Should pressure on the uterus above the symphysis be insufficient to fix the head firmly, we must then obtain command by means of one or other of the instruments just demonstrated.

TRANSVERSE PRESENTATIONS.

When neither the superior nor inferior parts of the child are lying over the centre of the brim, the *head*, I mean, or the *nates*, the *knees*, or *feet*, the fœtus lying across the pelvis, further difficulties arise, to the consideration of which we will next proceed.

In Burns's excellent work, I find reference to a very extraordinary case, in which the womb and abdominal coverings becoming torn open at these apertures, the child was spontaneously expelled, the woman ultimately recovering. More frequently, when the birth of the fœtus is obstructed, the uterus gives way, the fœtus escaping into the peritoneal sac, lying there for the rest of life, forty or fifty years for example, becoming converted into a mass of bone, and occasioning little further inconvenience, except that which resulted from its bulk and weight. To Dr. Cheston, a very distinguished practitioner, a case of this kind occurred. The woman lived subsequently forty or fifty years. After death, he found that the fœtus was ossified; and in the Museum of the College of Surgeons this presentation may now be seen.

In transverse presentations, it still more frequently happens that the uterus disrupted, the child escapes into the peritoneal sac, and is brought away through the pelvis, by the operation of turning. Carrying his hand into the peritoneum, through the lacerated opening, the accoucheur, careful not to lay hold of the intestines, seizes the feet of the child, and draws them over the centre of the pelvis. A case very similar to this has fallen to my own care; it was not, indeed, a transverse, but a vertex presentation; the pelvis was narrow, spontaneously the womb gave way. My hand was carried through the opening in the front of the neck of the uterus opposite the bladder (the bladder being uninjured), cautiously and slowly the feet were drawn down, the child was abstracted dead, but the mother ultimately recovered. That there was a rupture of the uterus, and that the child had escaped into the peritoneal sac, was without doubt. I felt the contracted womb; I felt the intestines; I felt the large pulsating arteries; I felt the edge of the liver; and this during the progress of my

hand towards the feet, which lay near the ensiform cartilage: nor, though curious, is the case by any means singular.

When the presentation is brachial, there is yet another way in which the fœtus may pass, occasioning but little anxiety to the accoucheur; for the pelvis being large, the fœtus small, the womb active, and the fœtus under six months of age, the child may be pushed away without interference of the accoucheur. Understand, however, clearly, that where the fœtus and the pelvis are both of standard size, you cannot succeed by this method of abstraction. Fracture of the arm and disruption I have seen in consequence of rude attempts to bring away the child in this manner — and this, too, (hear it, I entreat, Sir Anthony!) by the fair and gentle hands of a female accoucheur. The only cases in which you ought to confide the delivery to the natural efforts of the uterus, are those cases where you perceive obviously, from examining, that the child is coming down into the pelvis; examining the first time, you observe a small descent; examining a second time, you find it descended a little further; examining again, further descent is observed, the fœtus advancing perhaps with every pain.

There is, too, another principle from which your indication may be taken — I mean the age of the fœtus, ascertained by the "calculation or reckoning," as it is called, and by the dimensions of the protruding member, allowance made for that enlargement which results from compression and intumescence. In general, if the pelvis be of standard capacity, if more than six months old, the fœtus cannot be transmitted under the brachial presentation; if less it may pass. Pelves, however, may exceed or fall below the standard dimensions, and the rule must, of course, be modified accordingly.

When the child is lying transversely, it is worth our knowing that evolutions sometimes occur, and more especially in brachial presentations; a truth, for the knowledge of which we are particularly indebted to a very amiable and very excellent man, I mean Dr. Denman. Under this evolutionary descent of the nates, Denman supposed that the arm ascended, but Gooch, a practitioner full of talent, has shown that, in some cases at least, the arm scarcely rises in the uterus at all. For myself, after being present at two or three spontaneous evolutions, I am persuaded, that in most, if not all cases, as Gooch has suggested, the arm remains at the same, or nearly the same elevation, pushed a little to the side of the pelvis, while the body of the fœtus, relaxed and softened sometimes during life, more generally in consequence of extinguished vitality under strong and repeated uterine effort; first, the thorax of the child, then the abdomen and flank, ultimately the hip and breech, are urged through the brim; the parts not without incurvation of the softened body, successively following such other into the pelvis. Observing these "spontaneous evolutions," as he significantly called them, and unwilling to

interfere during parturition without need, Dr. Denman advised that, in arm presentations, we should always confide the delivery to the natural efforts, abstaining from the introduction of the hand into the uterus. When, in conformity with this opinion, in several cases these presentations were trusted to the unaided efforts of the uterus, in many cases, no doubt, the expected evolutions did occur; but, in some, perhaps I may say many cases too, the evolution failed, and turning became requisite. To this may be added, that, under spontaneous evolutions, the children were almost invariably born dead, — nine out of ten, for example, or nineteen out of twenty. For the purposes of practice, the fact itself is sufficient, and it constitutes some objection to Denman's recommendation; but it may not be amiss to add, in the way of explanation, that the death of the fœtus is rather the preparative than the effect of the evolution; in order that the fœtus may be evolved, flexibility is necessary, and this flexibility, in general, does not exist, unless the child is wholly or in great measure dead. Now, on both these accounts, because the fœtus is so often born dead, and because there is a fear that the powers of nature should fail her, as a general practice it is improper to confide delivery to the spontaneous evolution; but if the tendency to evolution be shown by your feeling the descending ribs or abdomen, or if you have made attempts to turn the child without success, either from want of skill, or from the insurmountable difficulties of the case, then, indeed, this mode of delivery should, I think, be fairly tried. I was called once to a case in the neighbourhood of town, where two or three accoucheurs of talent had attempted to turn the child, but could not succeed, and, on trying myself, I failed too. Under these circumstances, we deemed it prudent to wait; and in the course of two or three hours afterwards, the child came away by the spontaneous evolution.

In the transverse presentation, however, the ordinary method of delivery is by means of turning, to which I have so often referred; and in different ways this operation may be attempted. Laying hold of the cranium, we may endeavour to bring the head over the centre of the pelvis; or, laying hold of the breech, we may bring down the nates; or, laying hold of the knees or legs, we may draw down by these parts; so that the operation of turning may be divided into *three varieties;* the turning by the head, the turning by the breech, and the crural turning. Of these three varieties, the cranial turning is the safest for the child; because, if we can bring the head over the centre of the pelvis, there is no danger, lest the umbilical cord be compressed, and the child is born in the usual manner. Though desirable for the child, however, this form of turning is unsafe for the mother, because difficult for the accoucheur; for the head, large, rounded, and slippery, escapes from the hand, and the repeated endeavours to grasp it are not without danger of laceration. Next to the crural turn, is the turning by the nates; and I have told you already

what you have not, I trust, forgotten, that more children are born alive under the breech presentation than the crural. In the breech presentation, the lower limbs lying on the abdomen, there is a groove formed between the thighs, in which the umbilical cord lies, and is secure from pressure. Now when you introduce your hand to turn the child, perhaps the nates constitute the first part on which your fingers fall, and this part you may bring over the centre of the pelvis. Like cranial turning, however, that of the nates is, on the whole, not easy for the accoucheur, and hence, though safer for the fœtus, it is less secure for the mother, and, as a general practice, ought not to be adopted. When we turn by the feet or knees, the umbilical cord is exposed to continued and fatal pressure during the passage of the head and shoulders; yet, notwithstanding this objection to the crural operation, and though in some anomalous cases we may, perhaps with advantage, turn by the nates or the cranium, yet, on the whole, this method of operating by the feet is to be preferred.

In transverse presentations, it has been proposed to bring away the child by the Cæsarean operation, and after what I have seen of the difficulties and dangers arising from these presentations, I would frankly acknowledge that cases do now and then occur in which I conceive it would be less painful, and on the whole not more dangerous to the mother, to have the child taken out by the Cæsarean operation (improved as it may be hereafter), in preference to any other mode; but if we once admit the obstetric principle, that the Cæsarean operation may be performed in transverse cases as a substitute for turning, to the abusive adoption of the Cæsarean incision by the rash and adventurous, there would I fear be no end, and the greatest mischief ensue. Against such use of the operation, therefore, in the present state of knowledge, I feel it a duty to raise my voice. In transverse presentations I cannot allow that the Cæsarean incisions are ever justifiable, and the man who, under such circumstances, rashly performs them, would render himself awfully responsible for the result. Remember, that firmness and rashness, though approximated, are as different from each other as vice and virtue, and that from the reproaches of our own conscience it is no cowardice to shrink.

Mr. Scott, of Norwich, met with a case in which the woman recovered, although the os uteri was torn off and came away from the vagina. For reasons stated at large in the *Physiological Researches*, I feel persuaded that the division of the os uteri would not necessarily prove fatal; nevertheless, as a remedy in obstructed transverse parturition, in the present state of experience, it ought, I think, to be reprobated as both dangerous and inefficient. If an incision were made, on introducing the hand the opening would most probably become enlarged by laceration; and even though you passed into the womb with facility, the main difficulty would still remain, I mean the conveyance of the hand along the body of the uterus into the fundus, where the feet commonly lodge.

In transverse presentations I have never yet had occasion to remove the child from the uterus by embryotomy, having always found hitherto, that, with patience and management, delivery could be otherwise effected. Having, therefere, personally but little knowledge of the operation, I forbear copiously to enlarge on it, though a few remarks may be allowed.

In performing embryotomy it should, I conceive, be our first endeavour, from accurate observation externally, and within, to ascertain, as clearly as may be, the position of the fœtus. This point obtained, we may attempt the abstraction of the child in two ways, by decapitation, I mean, or disruption of the different cavities. For opening the cavities, I suppose the best instrument is a long large perforator, in the arm presentation, the most common, to be introduced at the thorax, the viscera being afterwards removed at the opening, so as to make room for the introduction of the hand and the seizure of the feet. Although, however, a fœtus may be removed in this manner, I suspect that extraction by decapitation, when this may be accomplished, is decidedly to be preferred. I should prefer to a semilunar knife with cutting edge, a blunt hook of soft iron, and not of steel, mounted on a stem, firm yet flexible, so that, in operating, the curve might be accommodated to the situation of parts. Over the neck this hook is to be fixed, and then by drawing resolutely, but rationally, the head is to be torn from the body; the body of the fœtus being first abstracted by the arm, and the head removed from the uterus separately afterwards. These operations, calculated to fill the feeling mind with disgust and horror, can, I conceive, under no circumstances be necessary, unless the fœtus be dead; and it would be still more satisfactory to operate when putrescence is begun, as this would facilitate the dissolution of the junctures. In brachial presentations, the putrescency is known by the state of the arm, ascertained easily as it lies under the eye of the operator.

You will ask me, perhaps, in concluding the subject, how it is that the transverse cases terminate, when committed entirely to Nature; the accoucheur, forbidden by the patient, or being incapable of accomplishing the delivery, forbearing to interfere. When the child lies across in the pelvis, it so rarely happens that these cases are committed to Nature, that we have really little opportunity of knowing their natural termination; but it is highly probable that, in some few cases, the women would die undelivered; while in others, perhaps most cases, the fœtus, softened by putrefaction, would come to pieces in the cavity of the uterus, or be pushed away by a spontaneous evolution, the mother ultimately recovering, or sinking in consequence of lacerations and contusions, exhaustion, or the like.

LECTURE XIV.

TURNING.

In turning, as in most of the obstetric operations, it is a point of no small importance to determine aright on the proper moment of interference; for, like our repartees, our obstetric operations must be exactly timed, to produce their effect. Entering, therefore, on the consideration of this important operation, I may commence by making some observations upon those indications which enable the practitioner to discriminate here.

By some it is asserted, that turning ought never to be attempted, unless the os uteri be widely expanded, or, at all events, relaxed in such degree, that it may readily dilate under the pressure of the finger; nor is the rule to be despised. Generally, when the mouth of the womb is wide open, the hand may be introduced with safety; and this being the case, the sooner it is passed into the uterine cavity the better: while, on the other hand, if the os uteri be rigid, or if it be shut in great measure, — the disc not larger than that of a shilling, for example, — the introduction of the hand is unsafe.

By some practitioners, again, the indication for turning is taken from the laxity of the softer parts; and if the os externum, internum, and vagina, are all of them tense and unyielding, so that the entrance of the hand, perhaps of large size, would be attended with bruising or laceration, we are told to refrain; whilst we are advised to introduce the hand, even though the os uteri be undilated, provided the softer parts, thoroughly relaxed, yield under the pressure of the fingers; nor is this rule without its excellence: for when the parts are rigid, the hand certainly ought not to be introduced; but where they are thoroughly relaxed, with proper caution a gentle operator, with a hand of small size, may often securely enter the genital cavity; and we may be told, perhaps, not without show of reason, that the sooner he operates the better.

There are some practitioners who lay their principal weight on a third indication, I mean the condition of the membranes; and if they find that the membranes, unbroken and still full of water, are pushing through the mouth of the uterus, they refrain from turning, considering that so long as the water is retained, there is no risk lest the child become incarcerated in the uterus, so as to prevent the access of the hand. But if, on examination, they perceive that the membranes are lacerated, and the liquor amnii away, then, without much regard to the laxity of the parts, or the expansion of the os uteri, they are anxious, as speedily as may be, to perform the operation. Now, of this rule, the latter part lies open to decided reprobation. Admitting, as those who have

experience must do, that after the discharge of the water an early extraction of the child is desirable; we must, however, admit too, that so long as the os uteri is shut, and the parts are unyielding, dreadful lacerations may result from rash attempts to introduce the hand. With respect to the former division of the rule, that, I mean, which declares that it is not necessary to introduce the hand so long as the membranes are untorn, and the liquor amnii is retained, to it I do not much object; because I agree, that whilst the liquor amnii is not discharged, there is no danger lest the fœtus becomes compressed and incarcerated, and there is no danger, therefore, lest the access of the hand should be debarred.

For myself, the rules which I observe in discriminating the proper moment for commencing the operation of turning, and which, useful in my own practice, I recommend to yours, are, not to enlarge needlessly, the following:—I lay it down as a principle, in which I think every practical man will agree, that provided the operation of turning may be performed without more than ordinary risk of bruising, tearing, or other injury, the sooner it is executed the better. If, then, I deem the operation safe and necessary, I do not needlessly delay it an hour — a quarter — I had almost added a minute, or a second; and this, more especially, as before hinted, if the membranes are broken, and the liquor amnii discharged; because, while we are delaying, the womb is generally becoming more active, and more contracted, the dangers and difficulties of the operation continually thickening in consequence. Indelibly, therefore, let this principle be impressed on your minds. Never turn without need, never rashly have recourse to the operation, without considering whether it be or be not safe; but if you are fully satisfied that turning will not be attended with more than ordinary danger, and if you are satisfied further, that there is no reasonable hope that the child may come away in any other manner, the sooner the operation is performed the better.

But you will ask me perhaps here, when are we to consider that the introduction of the hand is unattended with greater danger than ordinary; or, to give the question in a more practical manner, when are we to consider that the danger of turning is no greater than we are justified in imposing? Why, I consider that the hand may be introduced with such degree of safety, as may justify the operation, provided you find the os uteri to be as broad as a dollar; and provided you find too, on pressing in different directions, that the softer parts are thoroughly softened, the patient, perhaps, being the mother of many children, or relaxed by copious floodings. This rule, then, may be given in few words, as follows: — In ordinary cases, if the mouth of the womb be as broad as a crown-piece, and if the softer parts be relaxed thoroughly, the introduction of the hand is not exposed to greater risk than usual; there seems to be no circumstance preclusive of the operation, and the sooner we commence the better.

The operation resolved on, unless the rectum be loaded I should

dissuade from the administration of injections in the way that some have recommended. The intestine, indeed, they clear, but they also stimulate the uterus, and bring on the pains which every one, who has had experience of these cases, will be solicitous to avoid.

Before turning is attempted the bladder should be evacuated. This, in general, it may be, by the natural efforts. If, however, the urinary organs be in such a condition that the patient cannot discharge the urine by the natural efforts, provided but little water be collected, the catheter is unnecessary; but if, on making investigation above the symphysis, you find that the accumulation is large, the catheter may be introduced. In different postures the patient may be placed, when you are going to perform the operation of turning; but though you need not always turn under the same position, for ordinary purposes you will find it most convenient to put the woman in the usual obstetric posture, on the left side, close upon the edge of the bed-frame, (if difficulty be anticipated,) with the shoulders forward, the loins posteriorly, the knees upon the bosom, and the abdomen towards the bed. Nurses, as formerly observed, are apt to place the patient with the shoulders posteriorly, and the loins in front, a position exceedingly incommodious for the operation under consideration.

As to your own posture, you will find it convenient sometimes to kneel at the bed-side, a pillow being provided, and sometimes to sit in a very low chair, your position varying as the operation proceeds. Respecting the position of the uterus and the fœtus, and especially of the feet of the child, you ought to have clear ideas before you commence the operation. In a preceding Lecture I observed to you what I now repeat, that the uterus, in the end of pregnancy, lies entirely above the brim of the pelvis, occupying about two-thirds of the abdominal cavity; the abdominal coverings and loaded bladder are before it — the intestines and other viscera are above and behind it — and the womb leaning forward, its axis lies parallel with a line stretching from the coccyx to the navel; the fundus pushing forth beyond the ensiform cartilage, and the mouth, seated at the brim, is inclining toward the lower extremity of the sacrum. Nor must we forget the ordinary position of the fœtus, placed commonly in these cases with the shoulder over the os uteri, the head on the cervix, and the feet in the fundus, with the loins and lower limbs carried along with the fundus uteri towards the front of the abdomen, the thorax, head, and arms, lying behind. Do not neglect these hints. To acquire ideas as correct and distinct as may be respecting the position, both of the fœtus and the uterus, is of the greatest importance in this operation.

Before we commence the operation of turning, we ought to ascertain with nicety the position of the feet, — whether they are in the front or the back of the uterus, at the left side or the right; points best determined by examining the presenting part. And

as the arm case is the most common, and as it is unfortunately the most difficult of management, on this case I will describe the method to be observed. Let us suppose, then, a brachial presentation, the arm lying forth beyond the external parts; we are by examination to ascertain the position of the feet, in order that we may reach them and turn. For this purpose it should be observed, that when the arm is extended, and the hand is placed intermediately between supination and pronation, the palm of the hand takes the direction of the loins, the thumb lies towards the head, and the little finger towards the feet. Well, now, applying these principles to the case before us, the palm of the hand lying to the sacrum, I know the abdomen of the child, with its legs, is on the back of the uterus; the thumb lying to the right, I know that the head is to the right; the little finger placed to the left, I know the feet are to the left also; and thus, without inspection, merely by paying a little ordinary attention to the presentation, I am enabled to ascertain that the feet are lying on the back of the uterus, and towards the left side, which is precisely their position. To repeat, then: before you commence the operation of turning, consider what is the bearing of the uterus itself; consider what is the position of the child; and, more especially, consider what is the position of the feet. This accomplished, you need no preceptor to admonish you which hand is to be preferred. Knowing the situation of the child, and the feet, together with your own method of operating, you will discover, on a moment's reflection, whether the right or left hand be the more commodious in any individual case under care. If you think you will be able to reach the feet more readily with the left hand, by all means let this be employed; if otherwise, employ the right. Without intending to prescribe any fixed rule, I may remark, that the woman lying on her left side, the usual position, you will generally find the left hand more subservient, if the feet are in the back of the uterus, while the right may prove commodious, provided they lie in front. Some practitioners always turn with the left hand, and some always with the right; but from the reflections just made, it is obvious that you ought to acquire, if possible, the dexterous use of both.

After considerable observation on the operation of turning, I have been induced to divide the turning cases into those in which it is easy, those in which it is difficult, and those few cases in which it is impracticable, either for a time or permanently, so that you are obliged to resign it altogether.

CASES OF EASY TURNING.

If you adhere to the wholesome principle formerly announced, and commence the operation of turning as early as the safety of the patient may admit, you will, I believe, in general, find it of easy execution: the woman is as yet unexhausted, the softer parts are relaxed, and the vagina and womb are free from inflammation

and tenderness; the cavity of the uterus, capacious and uncontracted, admitting the ready approach of the hand of the operator to the feet of the child, and allowing of an easy evolution afterwards.

In operating in these easy cases, it should be your first office to make choice of the hand with which you mean to act; and knowing, as before advised, the situation of the feet, you speedily determine which of the hands may most readily reach them, and may prepare it accordingly.

In the Gallery of the Louvre I once saw a painting of the Feast of Belshazzar, in which the Divine hand was graced with a ring and ruffle. I have heard of a French accoucheur, of finished exterior, who lost in the uterus a very valuable jewel: to our ingenious and lively neighbours it is better to leave "*ces gentillesses;*" and should you make use of ornaments, it may be as well to remember that there are occasions when they are better away. The hand, then, chosen, take off the coat, remove the shirt sleeve, abstract your rings, and with cold cream or lard, best fitted for the purpose, lubricate abundantly the arm, with the back of the hand and knuckles, avoiding the palm and inner surface of the fingers, as this is the part with which you lay hold of the child. Having thus prepared the hand and arm, you throw the fingers into the conical form, and pass them through the os externum upon the promontory of the sacrum, being very careful not to lacerate the perineum. The passage of the knuckles occasions the principal pain and danger. The risk and distress are greater if the woman have not borne children before. The transition may be facilitated by using the fingers as dilators. With mingled firmness and gentleness the operation should proceed. When the knuckles have cleared the externum, you find the whole hand in the cavity of the vagina, and it becomes your next office to enter the uterine cavity; for which purpose, again giving to the fingers the conoidal form, slowly entering the uterine cavity, you pass the mouth of the womb, always in great measure dilated before the operation can be properly begun. If the membranes have been broken, and the liquor amnii have been discharged, the hand readily enters the cavity of the ovum; but operating early, you will sometimes find the membranes not yet ruptured, and to enter them laceration becomes necessary. Whatever is worth doing at all is worth doing well. Let this part of the operation, though simple, be carefully executed. When the membranes become tense, under the action of the uterus you have the most favourable opportunity for breaking open the cyst. Be careful to put the hand into the cavity of the ovum, as the interposition of the hand between the womb and the external surface of the membranes might give rise to flooding, by detaching the placenta. Throughout the whole of this part of the operation, bear in mind the awful danger of vaginal and uterine laceration, and beware.

Suppose, now, that all these measures have been carefully exe-

cuted; that the cyst has been opened; that the hand has been insinuated; that the os uteri has sustained neither contusion nor laceration; your hand being passed thus far above the brim of the pelvis, and lying in the uterus, you may promptly, tenderly, press forward towards the fundus, so as to bring the brawn of the arm into the vaginal cavity, preventing by this plug the escape of the waters, if they are not already discharged. Your hand lies perhaps amidst the waters; or if the womb be lax and capacious, the hand may be moved about with facility, though the waters have been discharged. Knowing the region of the feet, advance, during the absence of pain, directly to this part of the uterus, usually the fundus, slowly or rapidly as the parts may bear, very careful not to lacerate the womb or vagina, — remembering that at this moment a thrust of the hand is contusion, laceration, destruction, death. The third stage of the operation completed in this manner, and the hand approximating to the feet, in general the arm lies in a line stretching from the umbilicus to the coccyx, the bend of the elbow approaching the key of the pubic arch, the hand lodging in the top of the uterus, and the brawn of the arm taking its place in the cervix uteri and vagina. At this part of the operation pause for a little, — repose yourselves, and reflect. Preparation thus being made, the fourth stage of the operation commences with the seizure of the feet, you being careful to ascertain clearly that they are the feet, and not the hands; and further, that they are both the feet, and not a foot and a hand together, mistaken for them. Having made sure of the feet, grasp them as you please; but you will find it not inconvenient to place two fingers, the first and second, on the back of the legs, so that the fore-finger may rest above the projection of the heel, the thumb and two remaining fingers lying on the legs in front. In this way you may secure a pretty firm hold of the legs, the hand not occupying much space. Having, then, in this, or any other mode more commodious, acquired a firm hold, slowly, smoothly, and without jerking, you draw, throwing the abdomen of the child upon the back of the uterus; so that, at the end of the operation, the legs hanging forth, you have converted a transverse presentation into a presentation of the legs, the front of the fœtus lying upon the sacrum, so that the arms and head may be easily got away.

The legs brought down in this manner, the head and shoulders must be extricated, a part of the operation which may require delays, as the intromission of the hand, of small compass, may have been accomplished with facility and safety, although the parts are too rigid to give passage to the head and shoulders, more especially if bulky. Before the head and shoulders are abstracted, therefore, examine the softer passages, and if they are lax enough to transmit the child without injury to either, let this part of the labour be completed immediately; but if there is a rigidity of the vagina, or a partial closure of the os uteri, so that immediate delivery becomes obnoxious to contusion, fractures, or

lacerations, you must wait. While the cord pulsates, the fœtus is in no danger; if the beat of the cord languish, danger may be apprehended. Remember, however, that the safety of the mother is paramount, — come what may, her person is to be preserved unhurt: this is a pre-eminent maxim of British midwifery; and if this require that the delivery be procrastinated, however fatally to the fœtus, the birth must be suspended. In our own families the life of the child would never be put into competition with that of the mother; nor can we err here in adhering to the maxim, equally admired by the saint and the philosopher, to be found alike in the writings of Confucius and in records more venerable: — Whatever ye would that men should do unto you, that do ye unto them.

The grand error to which you are obnoxious, the error against which you have been cautioned so often on other occasions, is the use of too much force — *arte, non vi:* ferocious, atrocious violence is to be exploded from midwifery. Contusions, inflammations, lacerations, fracture, decapitations, — these are the tremendous consequences resulting from this error, consequences at once fatal to the mother and the child. Will you offer up their blood to Moloch — that gory Moloch, obstetric violence? Laceration of the womb, laceration of the vagina, extensive laceration of the perineum, — one or other of these with certainty occurring if you operate rudely, and now and then perhaps when turning is performed with nicest care. Those make a mock of turning who have never seen its dangers; it is at best a fearful operation.

DIFFICULT TURNING.

Though always more or less dangerous, the operation of turning may often be accomplished easily enough, provided it be performed sufficiently early, and circumstances conduce. Hence you will sometimes hear your obstetric acquaintance triumphantly exclaiming, "For my part, I always turn without any difficulty," — a declaration, by the way, which evinces not their superior skill, but their small experience in the nicer and more dangerous parts of practice. In consultation especially, we sometimes meet with cases of turning, — embarrassed at once with difficulties and dangers; the body of the uterus is constricted about the fœtus; the mouth and cervix are more or less firmly contracted around the presenting part; the passages are swelled, inflamed, and dreadfully irritable; the patient, wearied with exertion, and desperate through suffering, cannot be persuaded to lie at rest upon the bed; and thus, sometimes, though rarely, a case is created which might try the nerves and the muscles of even those minions of obstetric fortune, to whose superlative skill all difficulties give way.

Called to cases of this kind in the middle of the night, it should be your first care to rouse your drowsy faculties, and to consider

with your associate the difficulties which you have to encounter. A French author somewhere asserts, that there has been more wit in Europe since coffee was introduced. In cases of difficulty and drowsiness, a basin of strong tea is not without its utility, — if green and hot, it is a sort of tenth muse, and has, I am persuaded, in modern times, excited thoughts, less sparkling perhaps, but not less judicious, than the inspirations of those much-vaunted draughts of Helicon.

In cases of turning, dangerous and difficult, you will sometimes find the patient in a state of excitement, and at others collapsed from extensive laceration or contusion, not always recollected by your predecessor when giving an account of the previous occurrences. Before, therefore, you turn, examine carefully the general condition of the patient; look at the countenance; investigate the pulse; consider the pains; — if the pains are ceasing, if the pulse is 140, if death is in the face, — a strong expression, which you may hereafter understand, — from one cause or another, extensive and fatal injury has been inflicted, and your prognosis must be given accordingly; but if the countenance though flushed is animated; if the pulse firm and round remains about 120 in the minute; if the efforts of the uterus are repeated and violent; — the energies are still unbroken, and much may yet be accomplished.

Further, before you proceed to the operation of turning in cases of this kind, you should prepare the passages for the introduction of the hand by relieving them from the inflammation and irritability. Sixteen or twenty ounces of blood, on an average, you may take away in this view. From 80 to 100 drops of the tincture of opium — for we give the larger doses in those cases — may also be administered with advantage; and with the decoction of poppies or warm water, (the decoction of poppies being preferable, however,) the softer parts may be soothed; after which you often find that the parts sustain the passage of the hand, though previously they could not bear a touch. Before you engage in manual measures, take means for the relaxation of the womb, its mouth and body; for from the construction of these, the principal difficulty is to be expected. For relaxing the genitals, the tobacco clyster would, I have no doubt, be found of all remedies the most effectual: and much it is to be regretted, that its effects are so dangerous. Of all relaxants the most powerful — it is of all relaxants the most perilous; and although I can readily conceive certain anomalous cases in which its use might be justifiable, yet in the present condition of my information, I have not courage to recommend it to your employment, even in those higher difficulties now under our consideration. In puerperal hospitals the warm bath might, I conceive, be used with advantage, the patient being kept there till deliquium approaches. From the excitement of the bath, a flooding might by some perhaps be apprehended; but a previous venesection would diminish the risk of this; or, should an eruption

occur, it would prove rather beneficial than otherwise. A very effectual relaxant is the abstraction of blood from the arm, say to the amount of 20 or 30 ounces; or rather, in such quantity as may give rise to deliquium. That the relaxant has great power, is sufficiently shown by what takes place in placenta cases; for in those cases where three or four pints of blood have been lost, the hand may in general be carried up with perfect ease, the uterus, passive and unresisting, giving way before our pressure. In a dozen cases or more I have had occasion to operate myself, and never do I recollect to have met with any considerable resistance to the entrance of the uterus. It is much to be regretted that large bleeding, or ad deliquium, is a very rough remedy, nor perhaps wholly without its dangers; one, therefore, which becomes justifiable only when the emergency is pressing.

Though the womb be an involuntary muscle, there seems to be no doubt that it may at length relax in consequence of becoming *weary*, so that, in the morning of the day, you are unable to introduce the hand; while, in the evening, perhaps, it enters the uterine cavity with facility. Although, therefore, the first effect of delay is an increase of the difficulties of the operation, the ultimate consequence may be a facilitation of it, so that it really seems better either not to procrastinate at all before you turn, or else to procrastinate as long as may be. The risk of spontaneous uterine disruption, and the protracted pains and anxieties which are the results of this delay, constitute the principal objections to it as a general practice. Nevertheless, in those cases in which bleeding, bathing, and other remedies, have been tried without effect, this measure may be thought of; a measure which may recommend itself to the most inert accoucheur, as it simply requires him to sit still.

To relax the womb, you may give opium by injection or otherwise, in large doses, 80 or 100 drops of the tincture, for example, or a proportionate quantity of solid opium, the remedy deserving a fair trial. Of the atropa belladonna, I have had little experience. It is asserted that the extract, if rubbed on the upper part of the vagina, will relax the os uteri; but till further observation, I cannot pledge myself to the truth of this opinion. A scruple I myself once applied to the mouth of the uterus in a case of dysmenorrhœa, no ill consequences ensuing. Beware of an overdose.

Such, then, are different expedients to which you may have recourse, in order to relax the uterus before you attempt the introduction of the hand — the belladonna; the larger doses of opium; the weariness of the uterus; the abstraction of large quantities of blood from the arm; the warm bath; and, most effectual of all, though most unsafe, the tobacco clyster.

Not to bewilder you, however, with a multiplicity of remedies, it may be well to remark, that of these remedies there are two on which I rely, in my own practice, and these two are the abstraction of blood, and the administration of opium. Twenty or thirty

ounces of blood I usually abstract from the arm, giving, too, 80 or 100 drops of the tincture of opium; and if that quantity do not produce the desired effect, I repeat smaller doses of twenty or thirty drops, administering these until some indication of its effect become apparent, — intoxication, drowsiness, or a diminution of the uterine efforts and pains.

The woman, then, prepared in this manner, you proceed to the manual part of the operation, of great nicety, requiring a mixture of tenderness, firmness, and no small share of ambidexterity. The passage of the os uteri will be the first difficulty with which you have to contend; the hand being opposed by the contraction of the womb, about the presentation, and it may be that you operate for fifteen or twenty minutes before you make a safe transition into the uterine cavity; for this be prepared, — beware of impatience and violence, — beware of lacerations, have mercy upon the patient; again, I say, have mercy upon her. Remember, that a thrust of the hand here is as fatal as a thrust of the bayonet: — wounds more dreadful were not inflicted on the bloody field of Waterloo, — wombs and women are not to be taken by assault. When the hand is carried through the os uteri, you may find it necessary to repress a little the presenting part, — to push the fœtus back hastily and extensively is fatal; you must not even think of it; you will tear the vagina, lacerate the uterus — do both, perhaps — how easily, too — but can you afterwards repair them? To repress the presentation, however, a little, an inch, for example, so as to allow the fingers to pass, may be allowable, because necessary. Even this repression, however, is always more or less dangerous, and it is best to attempt it when there is no pain. Your hand in the cavity of the uterus, you have not yet obtained your victory; the great difficulty still remains; I mean the access of the hand to the feet of the child, during which you have to contend with the following obstructions: — When the womb is contracted about the body of the fœtus — your hand is much incommoded; it becomes numb, cramped, partially paralytic, and unfit for service; and under the pain which you feel, perhaps drops of perspiration make their appearance on your forehead. Throughout the previous parts of the labour, you have borne the sufferings of the patient with stoical fortitude, and truly Christian-like resignation, but you now begin to sympathise — a feeling heart is certainly an honour to the possessor. In this condition, you feel for that part of the uterus which is the most roomy, and there depositing your hand, you repose for a few minutes, careful not to stir the fingers lest contractions of the uterus, and compressions, should again be produced. Be still.

When performing the operation of turning, you have to contend with a second difficulty, — I mean those occasional contractions of the womb which are denominated the pains; contractions which are exceedingly apt to be produced, when you attempt to make progress towards the feet. If the contractions are slight, and rare,

you need not interfere. In such cases, it is sufficient to lie quiet during the pains, endeavouring to steal forward afterwards, when the uterus relaxes. Should the womb, however, be angry, and the pains more frequent and violent, more opium must be administered: twenty or thirty drops every quarter of an hour, until its further operation become obvious, or till the uterine irritation be subdued.

In these turning cases, you will sometimes meet with a third obstruction, consisting in a *circular contraction* of the middle of the womb, dividing it, as it were, into an upper and inferior chamber, part of the fœtus lying in both. In passing this sphincter, if you proceed with gentleness, resolutely, yet cautiously, taking time sufficient to judge from two or three cases of this kind which have fallen under my own notice, you will generally find that the hand may, on the whole, be passed with tolerable facility and safety; but beware of force.

Thus, then, yielding or encountering these difficulties which oppose your progress, stealing forward when the womb relaxes, reposing when it acts; the hand extending flat upon the fœtus; the knuckles never elevated needlessly as you bear forward, lest the uterus be torn by them; at length you reach its fundus. Now, at the time when the hand is in the fundus uteri, the brawn of the arm lies in the pelvis, the hand bearing forward beyond the ensiform cartilage, and the arm below resting upon the sacrum and perineum, which you must be careful not to lacerate. If your person be slender, little difficulty will be experienced here; but should you carry much muscle, obstruction may arise, the pelvis being too small to give ready admission to the arm — I mean the bulkier part of it, nor can this difficulty be effectually removed; though your operations may be facilitated, and that, too, materially, by the copious use of cold cream or lard; or you may send for another accoucheur, who enjoys the necessary physical aptitudes. Women, in choosing their practitioner, should give a preference to those who are of effeminate make; and I feel the more satisfaction in giving this advice, injurious to none, because I know it will not be taken.

Such, then, are the principal difficulties which embarrass the operations of turning: the bulk of the arm; the circular constriction of the uterus; the occasional spasms; the general and permanent contraction of the womb; the constriction of the os uteri. The rigidity of the passages I forbear to mention, for if you operate at the proper moment it will rarely obstruct you. Through all these difficulties, perseveringly — resolutely — patiently — composedly, without violence, and successfully at last, you struggle at length to the child's legs, and happy you are to feel them. Do not confound the arms with the feet — an error to which you are obnoxious, when the nicer sensibilities of the hand have been impaired by compression. If both legs are seized, the child will turn more easily. If you can grasp one leg only, let this be brought down; often you may turn by one leg; but should it be necessary

to draw down the other, the access to the second will be facilitated by the descent of the first. Should the seizure of the leg be impracticable, I would recommend you to lay hold of the knees, gradually working your fingers towards the feet. If you are tantalized and baulked, by coming within touch but not within grasp of the feet, so that you can feel but not seize them, you may sometimes overcome this difficulty by changing the position of the patient. The woman turning round slowly, while your hand is in the uterus, by this movement, without further trouble, the feet may be brought among your fingers; so that under this simple manœuvre, although you cannot carry the hand to the feet, you may sometimes carry the feet to the hand, and this without much difficulty. If, however, by none of these measures the feet or knees can be reached and seized, withdrawing the hand, you may pause till you have recovered your strength a little, after which the attempt may be repeated with the same hand, or you may send for another accoucheur. By one or other of these expedients, in most instances you succeed in obtaining firm hold of the fœtal legs; and this accomplished, you draw them slowly into the pelvis, ultimately bringing them forth through the outlet, so as to convert the transverse presentation into the crural. In drawing down the fœtus, let the abdomen be thrown upon the back of the uterus and pelvis, as, under this situation, the shoulders and head will be most easily extricated. It is not by sudden or violent efforts, but by a steady, gentle bearing, that the child should be brought down. When the transverse presentations show a disposition to enter the pelvis together with the legs, as shown, the fœtus descending doubled, you may secure the legs by tying a ribbon round one or both ankles, drawn forth for this purpose; and then, pressing the presentation upward with one hand, while you bear forth the legs with the other, you cause the fœtus to revolve upon an imaginary axis, the original presentation passing of consequence from the mouth of the uterus, and the loins and legs descending in its place. From the description given, you may perceive that in this operation the child is not thrown back from the pelvis, so as to extend and endanger the laceration of the womb or vagina; though it revolves upon its axis, its elevation remains unchanged, or, if changed at all, it descends.

When the pelvis is narrow at the brim, space is sometimes wanting there, to give passage to the hand when grasping the feet; the mass formed by the two in conjunction being too bulky. This difficulty may be surmounted by withdrawing the hand, after having seized the feet with the crural forceps; or, if you secure the feet by placing two fingers, the first and second, upon the leg above the heel, the two remaining fingers and thumb being placed in front over the instep, the bulk of the hand may sometimes be reduced to so small a compass in this manner, that the transit of the brim may be accomplished.

One other difficulty I have met with when drawing down the legs, arising from the breech becoming seated over the front of

the pelvis, above the symphysis pubis. In these cases, let the nurse, while you are drawing, press steadily and firmly between the brim of the pelvis and the navel, urging the fœtus towards the promontory of the sacrum; and the breech becoming dislodged, the legs will afterwards descend with facility, the delivery being completed afterwards as in ordinary crural presentations.

Composure, perseverance, gentleness, patience, experience, great manual dexterity, and a thorough knowledge of the bearings of the fœtus, womb, and pelvis, are requisite in the accoucheur who manages these cases. Lacerations constitute the principal danger; *arte, non vi;* — of sudden violence beware: and take care, too, that you are not enticed by degrees to the use of too much force, wheedled onward by the delusive and dangerous, and continually successive expectations, that one ounce more pressure will bear down the obstruction. Ah! this one ounce — only one ounce more — it is this, I fear, which often kills the patient.

IMPRACTICABLE TURNING.

But what is to be done in those cases, of rare occurrence, in which the operation of turning cannot be effectuated? Why, if dangerous symptoms demand immediate delivery, embryotomy is, I imagine, the only remaining resource; but so long as no dangerous symptoms press, we may wait, with a reasonable hope that the fœtus will be expelled by spontaneous evolution. Two cases of impracticable turning I have seen, both terminating in this manner.

If spontaneous evolution be obviously begun, turning should not be attempted; if the fœtus is under six months old, the natural efforts may be trusted, and will frequently expel it; if, under your attempts to turn, you feel any fibres giving way, whether in the womb or vagina, withdraw the hand immediately. The body of the womb sometimes yields, but more frequently the back or front of the vagina near the bladder, or promontory of the sacrum. It is much to be regretted that we are in possession of no plain indication, enabling us to decide with precision when our attempts to turn ought to be relinquished as dangerous. The yielding of fibres, vaginal or uterine, is a good monitory sign; but it is to be wished that we had some less dangerous indication.

LECTURE XV.

FLOODING CASES.

Where the discharge of blood occurring before or during parturition is in small quantity only, it may be regarded with little apprehension, being perhaps rather favourable to the patient than

otherwise, because it tends to relax the softer parts. It too often happens, however, that instead of these smaller eruptions we have the blood breaking from the uterus in large abundance, to the amount of two or three pints, for example ; when dangerous in a high degree, it requires in the different cases a treatment various in its modification, but essentially the same in all ; and hence it is that we have thrown together in one class all those cases in which the blood is largely bursting from the uterus, considering them under the general appellation of floodings, a title at once interesting and familiar to every obstetric.

In the earlier months of pregnancy, when blood is coming away largely from the uterus, the discharge may be produced by the detachment of any part of the ovum from the uterine surface; for in these earlier months, say in the second and third, the vessels of the uterus shooting in large numbers into every part of the ovum, no part of the ovum can become separated from the uterus without rupture of vessels and consequent hemorrhage. In the latter end of gestation, say the seventh, eighth, or ninth months, the vessels still push into the ovum on all sides, but those which are pushing into the membranous part of the involucra are few and small, and if torn, discharge but sparingly ; while the vessels which pass reciprocally from the placenta to the uterus, are very numerous and very capacious ; hence it happens that flooding to a great extent must take place when these vessels become torn open in consequence of a disjunction of the placenta and uterus from each other.

In flooding cases, the quantity of blood which passes away varies exceedingly, amounting in some instances to a few ounces only, in others to a few pints, or quarts, perhaps I might add gallons. And this variation in the measure of the discharge arises principally from the following causes, operating separately or in combination : I mean the age of the pregnancy, the extent of the separation, and the duration of the process. On the age of the pregnancy much depends, and you may lay it down as an axiom, generally though not universally true, that the floodings of the latter months are more copious than those of earlier gestation. For when the blood flows away in the earlier months, it flows from a uterus of small size and from small vessels, in which, therefore, there is much less blood than we find in the same organ at a more advanced period of gestation ; while those floodings which break forth in the latter months make their attack when the uterus is thoroughly enlarged, with all its vessels numerous and capacious, and plentifully filled with blood. Hence it holds, as a sort of general prognostic, that while all the floodings in the later period are attended with much danger, those which occur in the earlier months, provided the woman enjoy an ordinary share of health, are seldom destructive to life, though the general health may sometimes suffer severely. When the ovum separates from the uterus, the quantity of the hemorrhage may be determined in part

by the extent of the detachment. Thus, even in the earlier months, if the ovum separate extensively, a copious bleeding may occur, while a sparing bleeding may take place, even in the end of gestation, provided the detachment of the placenta from the uterus be of small extent, not exceeding two or three square inches, for example. Nor is it to be forgotten that there is much variety in the duration of these floodings, the discharge in some cases recurring for weeks together, while in other cases the whole attack is comprised within the compass of a few — two or three days, for example, or even of two or three hours. Hence a third cause, giving rise to variety in the quantity of blood discharged; for where the process is short, the discharge of blood of course is of short continuance, and may, too, be very sparing; but when the floodings are protracted for days or weeks together, half-a-pint escaping on one occasion, a pint on another, a quart perhaps on a third, it is obvious that the total quantity of blood lost may soon exceed even a gallon.

So here, then, are three leading causes, to the joint or separate operation of which the quantity of bleeding may be attributed to the age of the pregnancy, the extent of the detachment, and the duration of the process.

We frequently observe with satisfaction in flooding cases, that after a certain quantity of blood has been discharged, where the patiently is judiciously managed, or where she is left to her own resources, that unless she act very imprudently, the hemorrhage ceases either permanently, or at least for a time. Now, noticing this, the inquisitive mind may be led to inquire, (and not without reason,) what is the cause of this permanent or temporary stoppage of the bleeding? because the knowledge of such a cause may perhaps enable us to co-operate with nature more effectually when using remedial means. On this point, therefore, I next proceed to remark. When blood flows from the uterus, the discharge seems to be arrested in part here, much in the same manner as it is suppressed in other structures of the body, where dissolution of continuity has taken place; by faintness, I mean, and the formation of clot. The current of the blood slackens; the quantity which in a given time is transmitted through the uterus diminishes; the concretions which form over or within the mouth of the bleeding vessels, the flow of the blood being languid, are less liable to be pushed away; add to which, that the experiments of Mr. Thackrah, of Leeds, having confirmed the opinion, that when the body is faint the blood becomes more prone to concretion; this approach to deliquium it is evident does not merely diminish the risk of a detachment of the coagula, but effectually facilitates their formation. Among the causes, therefore, which first suppress the bleedings from the uterus, you may enumerate the faint condition produced by the hemorrhage. A woman losing two or three pints of blood, and being perhaps of hysterical diathesis, she becomes very faint, and under this tendency to deliquium concretions form,

under which, together with that closure of the vessels which is effected by the formation of that layer or coat of blood which lies over their orifices externally, little coagula are produced, which penetrate into their cavities perhaps to the depth of a line, and effectually close them on the principle of the plug. Hence in bleedings, whether from the uterus or from other parts of our structure, unless the patient be in danger of sinking into that state of asphyxia, or deep faintness, from which recovery is not to be expected, we ought by no means to be in haste to rouse them; that faintness which shakes to pieces the nerves of their friends is in truth not their danger, but their security; and allow me to strengthen this remark by observing, that if bleeding be stopped, as it generally is in these cases, provided the patient possess the ordinary share of bodily vigour, however alarming the faintness may appear to the inexperienced, in general she recovers gradually and safely if left undisturbed. But to resume.

If in other parts of the body a wound be inflicted, in four-and-twenty, or in eight-and-forty hours afterwards, sometimes in a shorter period, provided the vessels laid open be not of a very large size, and the hemorrhage do not proceed so as continually to interrupt the process, inflammation supervenes in the coats of the vessels, and this inflammation gives rise to a deposit of adhesive matter in the orifices of the vessels, which, becoming consolidated by organization with the tunics of the vessels which enclose it, renders the security of the obstruction complete. For a thorough development of this principle, we are indebted to the late Dr. Jones, a physiologist of great promise.

Now, it is a question whether in the uterus, similar in its vascular organization to the other parts of the body, the same defensive inflammations may not also occur; and whether, after the hemorrhage has been temporarily restrained by clots and faintness, a more secure closure of the vessels may not be accomplished in the course of a few hours by the deposition of small plugs of adhesive matter, and an organized union of them to the sides of the bleeding vessels in the manner just described. That such adhesive inflammation takes place in the bleeding vessels of the uterus has never been clearly demonstrated, though it appears not improbable. It seems the less certain, however — first, because it has never been demonstrated to the eye; and secondly, because we find that a woman once bleeding from the uterus, there is always, if she stir about, a great disposition to a renewal of the discharge. Now, if by adhesive inflammation all the vessels were shut up, as in other parts of the wounded body, it seems, on the whole, scarcely probable that the hemorrhage should be so easily renewed. Among the means, therefore, of arresting bleedings, the closure of the vessels by phlogistic adhesions may be properly enumerated; but it must be admitted, in the present state of our knowledge, that its operation on the *womb* is uncertain.

Thus far the suppression of hemorrhage from the uterus bears

a near reliance to the stoppage of bleedings from other parts of the body; but you ought to be aware, that eruptions of blood from the uterus may be restrained, more or less effectually, by the operation of a third cause, peculiar to gestation, and that cause is the discharge of the liquor amnii. Even when that fleshy mass, the placenta, is lying over the mouth and neck of the uterus, the discharge of the liquor amnii, when practicable, might perhaps tend to diminish the hemorrhage. But, however facts may hereafter dispose of this question, there seems to be little doubt, that if no portion of the placenta be lying upon the mouth of the uterus, the membranes alone covering it in the ordinary manner, and discharge of the waters will, in most cases, arrest the flooding, or so far diminish it, that it becomes no longer dangerous.

Peculiar to the uterus, there is yet a fourth means by which the bleeding may be arrested, and that is, the complete evacuation of the uterine cavity, effected by the spontaneous expulsion, or the artificial removal of the ovum, fœtus, and secundines. The thorough contraction of the muscular fibres of the uterus, and of consequence the effectual constriction of the bloodvessels, greatly diminish the risk of hemorrhage, and in the earlier or later periods of gestation, when floodings occur, if the ovum be expelled the uterus contracts itself, so as to become permanently round and firm, and hard like the head of a fœtus, in general further hemorrhage ceases, and thenceforth the patient is secure.

How it is that discharge of the liquor amnii has the effect of diminishing and stopping the bleeding effectually, I am not able satisfactorily to explain, though I suppose something may be attributed to the partial constriction of the vessels by the surrounding fibre, and something again to the pressure which the contracting uterus makes upon the placenta. After the liquor amnii is discharged the uterus always contracts itself, and indeed expels the ovum within an uncertain period of one, two, or three days, so that the escape of the water is not only immediately effectual in checking the hemorrhage, but ultimately brings the patient a still more certain security — that, I mean, which is derived from the complete evacuation of the womb. When the ovum is away we can more clearly understand how the stoppage of the hemorrhage is effected. The uterus then decidedly contracts, the muscular fibres contract too, and of course necessarily cause a constriction of the uterine vessels, which are ramifying among the fibres. By the thorough contraction of the uterus, therefore, you insure at the same time a thorough contraction of the vessels, which, by the constriction of the muscular fibres round them, are closed as effectually as if they were secured by a set of ligatures, and compressed much in the same manner as when the fingers of one hand are pressed upon the fingers of the other.

Here, then, are the four principal causes which, operating separately or in connexion, seem to stop the discharge of the uterine blood: — the formation of clots under faintness; the closure of

the vessels by inflammation; the discharge or the liquor amnii; and the evacuation of the uterus. To this important topic I have given the more attention, because you never can scientifically assist nature in the stoppage of these floodings, unless you understand the mode in which she operates.

Hemorrhage from the uterus may suddenly destroy life; the after-floodings more especially, under which patients sometimes die, and very unexpectedly. The woman is delivered with unusual facility; the placenta is removed, it may be, with more than ordinary care; the practitioner leaves the room, and is perhaps in another apartment conversing with some of the family respecting the auspicious termination of the labour, when suddenly he is summoned to the chamber of the patient, where he finds her at the point of death. Repeatedly cases of this kind have occurred; generally, however, when the patient sinks in consequence of the loss of blood from the uterus, death steals on its victim in a more gradual manner, and there is, therefore, more opportunity for the use of those remedial means by which the bleeding may be checked, and the danger averted. Now where death in this manner makes an insidious approach, three or four hours may pass away before the respiration ceases, while there occurs a long train of symptoms to which I have been too often witness, and which may, I think, be divided advantageously into two classes,—those which may be looked upon as less alarming, and those more dangerous symptoms, which are to be regarded as the more *immediate precursors of dissolution.*

First, then, we may observe, that when blood comes away in large quantities from the uterus, alarming symptoms soon begin to appear: the extremities become damp and chilly; the tongue, lip, and cheek pale and ghastly; the pulse frequent, (140, 50, or 60,) small and perhaps intermittent, disappearing in the wrist for a few seconds, or even for a few minutes, nay, for an hour or more, and then returning; and there is weariness and weight in the limbs, and fainting, and sighing, and vomiting, and cessation of the pains. Now all these symptoms you may throw together under the head of symptoms alarming in a high degree, but which are not to be looked upon as indications of immediate and almost certain dissolution.

When the patient is about to die in consequence of the blood she has lost, in addition to the preceding symptoms, which may have been precursory, the following also frequently occur: the whole body becomes damp and chilly, the very breath becoming cool, as you may feel sometimes by putting the back of the hand a little before the mouth; and the pulse intermits very much, or perhaps it is permanently imperceptible in the wrist, which it may be for minutes, ay, for half an hour, an hour, or even longer than this, before the dissolution takes place, and soon the patient becomes restless, and wishes to alter her posture, and no persuasions induce her to lie quiet; relief flies before her, she

changes her position, and again she changes, but remains uneasy still; and now the irritability and exhaustive oppression continually augmenting, she gets at length into a state of involuntary jactitation, throwing her limbs about upon the bed, and deep convulsive gasping sobs occur, and these are speedily followed by a cessation of the cardiac and pulmonary actions. When respiration is once stopped, she is gone beyond the reach of any known remedy, under received methods of management — not even transfusion itself can save her; a solemn pause follows, presently, broken by ejaculations scarcely audible; some dear friend sobbing and in tears exclaims, "Can you do nothing? Is there no hope?" What can you answer? Nothing! None!" But if we could but have foreseen; if, instead of raising a senseless clamour against experiments and experimenters, we had only availed ourselves of the helps of physiology; if we had only supplied the necessary blood; if we had only transfused, (and how easily it might have been done!) at worst she could but have died.

In flooding cases (let me add further) there are two ways in which the blood may be discharged — by *gushes*, I mean, or by *drainings*. In the latter months of pregnancy, when the bleeding first comes on, the blood frequently rushes from the uterus by impetuous bursts, so that in a few seconds a pint or two may be lost; and this it is which constitutes the gushes. Then, after this gush, the hemorrhage may cease altogether, or it may be converted into a slow oozing from the uterus, continuing more or less for hours together. And this latter kind of bleeding it is, this slow and sparing discharge from the uterus, in the course of a day or two, occasioning sometimes large losses of the vital fluid, which constitutes what are called drainings. Now the gushes are produced by the detachment of the placenta or ovum from the uterus, by which the vessels are immediately laid open, and the drainings seems to arise in part from the languor of the circulation, produced by faintness, and also in part from the formation of clots, which give only a partial closure to the vessels, so as not to put an entire stop to the bleeding, although at the same time they preclude the eruption of large quantities at once.

TREATMENT.

Having said thus much on the nature, effects, and spontaneous suppression of flooding generally, I will now proceed to the consideration of the method of treatment, commencing with the management of the more sparing floodings, those especially of the earlier months; for example, the first three or four. If you are called to a patient in the earlier months of gestation, labouring under a small discharge of blood from the uterus, she will tell you that she has a show, occurring perhaps spontaneously, or attributed, it may be, to some accident — a blow, a fall, a Christmas

party, a long walk. Well, the discharge appearing in this manner, one of the first measures to be prescribed is a sort of *antiphlogistic regimen*. To the horizontal posture the patient should be confined for days or weeks together, lying extended on the sofa or the bed, the bed being enjoined in preference to the sofa, if the disposition be restless, as the woman is then less likely to rise occasionally and stir about. The chamber, if sultry and close, should be immediately cooled ; stimuli should be forbidden, and especially port wine, a drink to which women when flooding are sometimes much addicted. They consider it to be nourishing and astringent — half a bottle or more is sometimes taken in the course of the day : I might mention much larger quantities, but respect for the sex prevents me from hyperbolizing here. That port may be of use when cordials are required, I do not deny ; wine however must be regulated by the medical attendant, and as a general beverage it is improper. Plain nourishment is requisite, particularly if the discharge have been rather copious. These are very important points of treatment.

Called to a case in which the discharges from the uterus are sparing, you should always inquire diligently into the state of the bowels, not unfrequently in these cases closed. On two accounts moderate evacuation appears to be desirable ; first, because by clearing out the bowels you will remove any irritants which might be lodging there, in the rectum especially ; and secondly, because in clearing the bowels, by this measure you cool the system, perhaps heated by febricula. Drastic purgatives, or even active laxatives, are highly improper ; they may occasion the premature expulsion of the ovum. Manna, rhubarb, magnesia, Epsom salts, or castor oil, in small doses, may succeed very well. To calomel I am averse ; on some bowels it acts roughly, and I have seen it apparently occasion miscarriage.

You will often find in these more sparing floodings that there is a certain degree of fever ; the surface is warm, the tongue is white, and the pulse is 100 or 110 in the minute — in the nervous much more frequent. Now when this is observed, it will not be amiss to administer to your patient some *refrigerant* infusion of roses — for example, with the sulphuric acid and sulphate of magnesia, in small doses, more with a view to the refrigeration of the system than the laxative operation on the bowels. Nitre also may be tried, a powerful refrigerant, if used as a placebo, in daily doses of fifteen grains only ; if really employed with the view of obtaining its full effect, then in much larger quantities, say of one or two drachms in the twenty-four hours ; the practitioner carefully watching the patient, so as to ascertain whether the nitre irritate the stomach or not. To mix nitre with infusion of roses is unchemical, as more or less decomposition ensues.

When a sparing hemorrhage from the uterus is combined with *febricula*, the *digitalis* seems to be particularly appropriate, and there are some accoucheurs who are very partial to its use. In

operative doses Dr. Haighton had found it rather an unmanageable remedy. Dr. Hamilton seemed at one time to suppose, that in effective quantities it might destroy the child; whether this be so or not, I really cannot, from my own knowledge, decide. Experiments on animals are wanted to illustrate the point. Burns, who has written so largely and so well on the subject of midwifery, has found the digitalis of great service. In the more obstinate bleedings, with febricula, on the very respectable authority of Burns, I would recommend the digitalis to your consideration, adding, that if you give it at all, you ought to give it in operative doses. Now those doses you will find to vary exceedingly in different individuals, one requiring a much larger quantity than another. *Sixty drops* of the *tincture*, or *an ounce* or *an ounce and a half* of the infusion in the course of twenty-four hours, are moderately effective quantities: care must be taken, when these larger doses are given daily, that the patient be sedulously watched by a competent person. Purging, great sickness, a double quantity of urine, a pulse of long intervals, or of unequal intervals, or with intermissions, are singly or in conjunction the marks that digitalis is in action: if you find any one or all of those effects taking place, the digitalis is to be immediately laid aside altogether, until you have an opportunity of knowing whether an accumulative action will occur or not; for every one knows, that when this medicine begins to act, it may continue for hours to operate, with a perpetually increasing force, till the patient's life is endangered. To start into the sedentary posture, and to move suddenly, are both dangerous when the digitalis is in action; so also are large evacuations from the bowels.

In cases of hemorrhage from the uterus, whether of more copious or more sparing quantity, we are advised to make use of the oil of turpentine, a remedy which has received the approbation of Denman. Though not prepared by my own observations to assert its efficacy, yet, on trial, I have not found any effects which prohibit its employment, though it must be acknowledged that it is sometimes rejected by vomiting. Afloat on water, it is very conveniently administered: in this condition it is more likely to remain on the stomach than when formed with egg or other intermediates into an emulsion, a form of turpentine odious to the stomach. The aptitudes of the stomach for retaining the oil are various. In other cases I have myself occasionally given the turpentine very largely, so as to satisfy myself, that though there are some individuals who can scarcely bear one or two drachms of it in a day, there are some who, in the course of twenty-four hours, can take the larger quantities — three, or even four or five ounces, prior and smaller doses being increased gradually, and the effects on the chylopoietic and other parts of the system being sedulously watched. Used as a placebo, its doses must be small; but if given with a view to some decided effect, half an ounce or an ounce, on an average, may be given in the twenty-four hours. If it remain on the stomach it is well; if rejected repeatedly, it may

be laid aside altogether, though you may sometimes reconcile the stomach to its reception by the use of the effervescing draught.

Among the remedies, in cases of more sparing bleedings from the uterus, bleeding by venesection, or otherwise, may be enumerated as one, and not the least important. Bleeding, I believe, where the patient is in a febricular state, and is lusty and plethoric, may be useful; and sometimes when we take away blood from the arm, whether from cause or coincidence, the bleeding from the uterus becomes stopped. It is right, however, to mention here, that though bleeding in the sparing floodings is advisable generally, yet, if used indiscriminately in all cases, it may destroy. It is, I think, obvious enough, on a little reflection, that you ought not to have recourse to the lancet in those cases where the patient has already lost a great deal of blood. If, in consequence of blood lost already, the limbs are cold, the pulse small and frequent, the cheek pale, the countenance ghastly, why should you bleed? And yet I have seen patients bled in such cases! What is the advantage that is to be derived from venesection here? All the abatement of vascular action, derivable from an abstraction of blood, has been obtained already, in consequence of eruption of the vital fluid from the uterus.

If, from the previous eruption of a large quantity of blood from the uterus, you have reason to fear that a future copious discharge may occur, it is unsafe to bleed. If the woman have lost much blood already, the advantages derivable from a diminution of the quantity of the circulating fluid are, as before observed, already secured. Besides, how do you know after you have taken a pint. or two from the arm, that another one or two pints may not flow from the uterus? How do you know that those together may not be sufficient to sink the patient? They are not therefore copious floodings, but sparing discharges, which justify the intervention of the lancet. It is generally improper to bleed largely in the latter months, because the vessels are large, and the blood at this time is liable to burst forth in copious abundance. When the placenta is lying over the mouth of the uterus, for reasons more fully explained hereafter, there can be no certain security till the child and after-birth are away. In the latter months, therefore, when the placenta is lying over the uterine mouth, it is especially unwise to bleed. To preclude an eruption from the uterus, venesection can be of little use; and indeed, when the woman is delivered, whether by turning or the natural efforts, the blood will always be forced to come more or less copiously away, and often in large abundance. Venesection, therefore, employ if you please in your robust country patients, who have sparing discharges from the uterus, in the earlier and middle months; nay, it may be proper to repeat it then, but beware of bleeding where collapse is already begun, where large eruptions have taken place already, where the patient is advanced to the latter months of gestation, and where you have reason to believe that the placenta is lying over the mouth of the womb.

In cases of hemorrhage from the uterus, of somewhat copious quantity, there is another remedy, perhaps too much neglected, and that is, *proper nourishment*. If a woman goes on losing a little blood every day, she at last sinks into a state of *inanition*, and in the end reaches such a level of depletion, that some three or four ounces of blood may make the difference between life and death. That fatal quantity, if nourishment have been neglected, may be wanting to her in the decisive moment; on the other hand, if she take plain and nourishing food the supply to the vessels may be kept up. Plain sense, the wisest of mentors, will enable you in most cases to decide with judgment on this practice. If your patient, too full already, require bleeding from the arm, you bid her abstain from a nourishing diet; but practising in a large town, like this metropolis, you may have under care women in a state of great inanition, and to whom it may be absolutely necessary that nourishing food should be given. When nourishing food is taken, there are two ways in which it may be administered, either in the *fluid* or in the *solid* form: broths, jellies, fish, fowl, or flesh. Now where the patient can take the *solid* food, I prefer it on two accounts; first, because if digested well in a given bulk it contains more nourishment; and secondly, because where women are weak, and lose much blood, they are apt to become very *flatulent:* in this flatulency there is no danger, but it is inconvenient. By fluid aliment also, diarrhœa may be produced; and under inanition the mucous membrane of the bowel is too apt to suffer, giving rise to fatal purging.

With respect to gastric astringents, that is, astringents to be taken into the stomach, on these I have little reliance; and by astringents I do not mean the refrigerants before mentioned, as the sulphuric acid, for example; but astringents properly so called — catechu, kino, alum, hematoxylum, and so on. Alum I have administered in the larger doses, though I have not known it productive of any very good effect. Not to appear negligent, these remedies you may try, but I would not have you rely on them to the exclusion of others more valuable: they are of excellent service after the battle is won.

Of faintness I have already given my opinion. If the deliquium be such that the woman is likely to sink into a state of asphyxia from which she will never recover, then of course you must do your whole endeavour to prevent it. It would be too much to assert, that under small discharges from the uterus, it is impossible that fatal asphyxia may occur; but such is the nature of our art, that we must practice, not on the anomaly, but the general principle; and on this principle it must be admitted, that the faintness from small bleedings is unattended with danger — is highly conducive to the cessation of the bleeding, and in the general, therefore, ought not to be artificially relieved. For once, even in flooding, a meddlesome midwifery is bad. Let the patient lie in peace upon the bed.

LECTURE XVI.

MANAGEMENT OF COPIOUS FLOODINGS.

It was observed to you in a former lecture, that we sometimes meet with cases, of the earlier months especially, in which the discharge from the womb is sparing; but in practice we also meet with another variety of the disease, that, I mean, in which the discharge of blood is *more copious*, *more dangerous*, and *more pertinacious*—a sort of bleeding occurring occasionally in the earlier months, but still more frequent in the middle and later periods of pregnancy.

As in those cases where the discharge of blood from the uterus is sparing, it is always proper, when the discharge becomes copious, that the patient be placed in the recumbent posture, and that she be kept perfectly still; nor, if she lie in a very small room, or in a confined situation, provided the strength will allow, ought we to neglect her removal to a larger and more airy apartment, for the stimulus of heat has an obvious tendency to keep up the bleeding.

In those cases where the discharge from the uterus has been copious—as in the more sparing discharges, you are not to neglect the administration of nourishment. Nourishment the patient can scarcely take with advantage, provided the large gushes of blood are still upon her; but it happens generally, in the cases under consideration, that after one or two large gushes, one, two, or more pints of blood escaping, the patient sinks into a state approaching deliquium, a small drain of blood alone remaining; and under these circumstances nourishment may be administered with a fair prospect of advantage. Often, it is true, the digestive powers are in great measure lost; but generally, I conceive, a part of the food is digested, and contributes more or less to the formation of chyle and blood, in quantities not to be despised when the patient is endangered by inanition.

In the earlier months of pregnancy, where the discharge of blood is small, the oil of turpentine is recommended, on authorities in matters of experience well deserving our deference. By Denman and others, this same oil is recommended in the more obstinate cases of flooding, now under consideration; and although I have not myself tried the oil sufficiently often to enable me personally to vouch for its efficacy, yet on the whole, from the experiments which I have made with it, the impression left on my mind is favourable to its powers. I have told you already that the quantity which different stomachs will bear is exceedingly diversified; from half an ounce to an ounce in the course of twenty-four hours may be considered as an average dose; sometimes you may exceed this, and sometimes even a smaller daily quantity will be rejected

by the stomach. A drachm or two at once may be administered, floating on distilled water, a form less offensive than that of emulsion sometimes recommended.

Further, when there are large discharges of blood from the uterus, the patient being prone to sink into a state of asphyxia, it may then, no doubt, become necessary to keep the action of the heart by stimuli, (spirits more especially,) administered in a manner which I shall hereafter prescribe; but if, on the other hand, you are persuaded that the faintness is fugacious, beware of rousing the patient too hastily. Of the vascular action a certain degree of reduction is safe, and to be wished for in these cases, because under this faintness the stream of blood loses its impetuosity, and the inherent disposition to concretion is augmented, the quantity of blood passing through the vessels in a given time, and consequently the quantity of blood in given time discharged from these vessels, when torn open, being smaller in consequence; and on all these accounts, if the faintness be not very great, it is to be looked upon as a natural, very powerful, and very desirable remedy for stanching the discharge.

In flooding from the uterus, considerable advantage appears to be derived from the use of *lead* taken into the stomach, or administered by the rectum. To omit less weighty authorities, this remedy Dr. Haighton used to mention with great commendation, conceiving that he had himself used it with decided advantage. If you make trial of the lead, it is in the larger doses you should employ it, the quantity being from four to six grains of the *super-acetate* in the course of twenty-four hours; six grains being a large daily dose, and four grains in the twenty-four hours a dose more moderate. With respect to the mode of administration, it may either be dissolved in distilled vinegar, with a proper mixture of distilled water, or it may be formed into pills. And as the lead sometimes offends the bowels, giving rise to very severe spasms there, endeavours may be made to correct this evil, by the conjunction of the lead with opium. To two grains of the super-acetate add half-a-grain of opium, to be formed into a pill, and this the patient may take two or three times a day; or again, to five grains of the super-acetate of lead add sixty drops of the tincture of opium, three ounces of distilled vinegar, and the same quantity of distilled water, mixing and dissolving; the patient afterwards taking, four times a day, one quarter part for a dose. The lead, though reputed a powerful medicine, especially where there is a tendency to draining, is, it must be acknowledged, an unwieldy sort of remedy — a kind of elephant in the battle. For this reason the lead ought not to be used, unless the case seems peremptorily to require the more active treatment. It is not on every occasion that I would advise you to sit down, and, as a matter of course, to prescribe the super-acetate. If, however, you find the discharge copious and dangerous, and above all degenerating into obstinate drainings; if, to use a strong expression, death

stare the patient in the face — under such circumstances the active use of the lead might be recommended, and I think you would be fully justified in giving those large, and somewhat dangerous, daily doses, of which the measure was before given.

Under the action of lead, a paralytic affection, affecting the brachial muscles, is liable to be produced, occasioning a weakness of the wrist, denominated the *dangles*. In painters, and those whose occupations lead them to handle the more active forms of the lead, this obstinate paralysis is now and then produced. Whether the internal use of the lead have the same effect, I am not prepared to decide; but I never saw or heard of a single case of flooding or other bleeding, where, under the use of the super-acetate, this distressing disease has threatened the patient; and although I conceive that this fact ought to put you on your guard, there is no reason why you should be intimidated or deterred by it. Colica pictonum is certainly produced, sometimes by the lead in larger doses; a very severe pain extending itself along the bowels as the lead makes its way through them, harassing the patient much, but lasting a few hours only. From twenty to thirty grains of the compound extract of colocynthis, with two or three, or four grains of opium, is a useful remedy in these cases; or provided you deem the pain to be seated principally in the larger bowels, an ounce of the *oleum ricini*, and half a drachm, or a drachm by measure, of the tincture of opium, may be injected into the bowels with advantage.

Where the lead is given with due caution in the large doses, it may be given in safety; but you may ask me in what do these cautions consist? If you are administering the lead largely, you should observe the bleeding, and if you have effectually stopped it, let the lead be laid aside. Active and dangerous as the remedy is, a single dose more than seems to be justified by the urgency of the flooding ought not to be administered. When the lead is administered, watch; if intestinal pains are not produced, it is well; while, on the other hand, if you find severe pains in the bowels, the remedy should be laid aside, for, under these circumstances, its continuance is not, perhaps, wholly unattended with danger. In administering the lead, you ought to bear in mind, as you proceed, the aggregate quantity which may have been already given. Till, from your own experience, you find that more may be safely administered, do not rashly exceed the aggregate of twenty or thirty, or, at most, thirty or forty grains of the super-acetate, relinquishing the further use of the remedy if these quantities are inadequate to afford relief. So that by not exceeding a certain aggregate, which may be fixed by your own observations, by relinquishing the lead as soon as intestinal spasms become manifest, by refraining from the further use of the remedy, as soon as the bleeding is effectually checked, however small the quantity which may have been administered, you secure to yourselves, I think, the active use of the remedy without its danger.

When discharges of blood from the uterus are sparing, it is not my custom to apply *cold*, powerfully and extensively, to the lower parts of the abdomen — the back, thighs, buttocks, and so on; although, in conformity with popular feeling, I have recourse to vinegar and water, particularly if the temperature of the patient be warm. But when the discharges of blood are more abundant, cold, a very powerful remedy, must be called to our aid, and ought to be effectually applied, though not without due caution. When a woman has lost so much blood that she is, in every part of her body, cold already, which, in dangerous bleedings, is no uncommon occurrence; the application of cold, though, in conformity to popular prejudice, it may be recommended, is, I fear, of small advantage; but if you have a great deal of blood coming away, and if, with this, there is a certain warmth of the system, and a sort of febrile hurry of the circulation, in such cases cold may, perhaps, be administered with decisive advantage. Cold water is sometimes sprinkled over the body; cold water is occasionally injected into the rectum; and ice, naked or wrapped in linen, is occasionally pushed into the vagina, the remedy not being without its dangers, for if you *freeze* the vagina, it dies. To omit these practices, however, there are, for ordinary purposes, two modes in which the cold may be administered; the one is by laying bare the abdominal surface, and dashing over it cold water from the cup, or by means of the hearth-brush dipped in a pail-ful of water, a rough, yet effective, practice; the other, a gentler method, conducted as follows: —

From the cistern, or the well, you procure a pailful of water, to which a pint or two of vinegar, recommended by popular opinion, may be added; then taking some napkins, you effectually refrigerate them, by dipping into this cold mixture, or by thoroughly besprinkling their surface. This done, you apply them extensively to the central parts of the body, front and posteriorly, as soon as they become warm; it may be every two or three minutes, oftener or seldomer, as the communication of warmth from the body of the patient may require. In some cases the local application of cold seems really to be of considerable advantage; I have in my mind, at this moment, one case of draining, where other remedies had been tried with but little effect, and where the cold alone *appeared* to be efficacious in checking the discharge.

If the fœtus be come away, and if you have removed the placenta in *general* practice it is unwise, where there are large discharges, to *plug* the vagina; for this, in many cases, might occasion an *internal* bleeding, the bleeding continuing, though the efflux is prevented, and the blood, of consequence, accumulating in the cavity of the uterus. Where, however, in the more copious floodings, the womb is not emptied, and the placenta is not yet away, the plugging of the vagina may be tried with considerable advantage. The purpose of plugging is, that of allowing the blood to accumulate in the vagina and the uterus, so as to form

there clots, which may close up the mouths of the bleeding vessels. This object may be variously obtained: taking and folding a napkin, you may lay it upon the genital fissure, closing the orifice of the vagina without the introduction, or the irritation, of a plug. More conveniently, however, in many patients who are not irritable in those parts, you close the canal, by introducing a plug of tow, or sponge, or soft cloth. Cloth or sponge is the plug which I am myself in the practice of introducing, more or less, according to the capacity of the cavity, recollecting that the smallest mass which will inhibit the discharge of blood from the vagina, is the best for the purpose. Of women, there are some in whom the vagina is so destitute of irritability, that, introduce what you will there, the organ bears it without reaction; of others, on the contrary, and more especially of young females, the vagina is sometimes so exceedingly susceptible, that the plug cannot be borne, unless, perhaps, for a few hours; and, in these cases, the application of a napkin to the genitals externally may be substituted. When the plug can be borne for a few hours only, apply it nocturnally; this may prevent your being called up in the middle of a cold December night. When the plug remains quiet, do not be in too much haste to remove it; recollect, that the longer it is left there, the more completely will the vessels become contracted and closed up.

In the earlier and middle months of pregnancy, as in the end of gestation, you will find, as I explained to you in a preceding lecture, that to empty the uterus is a most effectual mode of stopping the blood, and hence the use of *deobstruents;* for it generally happens when floodings have occurred previously to the birth of the ovum, that on the abstraction of the ovum and the complete evacuation of the uterus, the discharge wholly, or in great measure, ceases. Where a patient is labouring under floodings in the earlier or middle months, and more especially under obstinate floodings, recurrent again and again; the emergency justifies us in having recourse to this remedy, unjustifiable perhaps in cases less pressing. In such cases the thorough evacuation of the uterus is the only remedy on which we can certainly rely. The uterus, however, it is not in our power to empty with the same facility and certainty, as the intestines or the stomach; but there are three remedies of the deobstruent class deserving a trial in these cases, and these three deobstruents are — succussion, injection, and the secale cornutum. A jolting ride on a rough road, in an uneasy carriage, where the propensity to miscarriage is strong, may occasion the expulsion of the ovum. The remedy is rude — scarcely to be recommended — fitted to a few cases only — where strength remains — and the pregnancy is of the earlier months — say the first two or three; in latter gestation it would be dangerous. A medical attendant should be in the carriage, — the house of the patient should always be at hand. Saline clysters will do little, if the womb is indisposed to contract; but if the

fibres are in action, an ounce of salts and six of the infusion of senna, or other more powerful stimuli of the rectum, may be tried with advantage. But of all the stimuli exciting uterine contraction, that, which, failing flatly in some cases, in others, however, seems to operate in the most decisive manner, is the secale cornutum, or ergot. In powder, in infusion, in decoction, it may be given; and suspecting from some experiments that its virtues reside in a vegetable alkaloid, I presume it may hereafter be administered in the form of pill, like the quinine, when probably it may be found less offensive to the stomach; — I would invite chemists to the investigation of this point. In general, my formula has been, of ergot ʒj. in coarse powder, of boiling water three ounces, to be decocted rapidly to one-half, the patient taking of the decoction poured off one-third every twenty minutes, unless some obvious effect were previously produced. In one miscarriage of the third month, to omit others, after the administration of the ergot, I remember the pains became almost incessant till the ovum was expelled. The ergot will not, I think, act unless the uterus be irritable and disposed to the pains. At Butler's, in Covent Garden, you may get supplies of the secale cornutum; — it is principally produced in America, and perhaps I may add the South of France.

In as many as thirty cases where floodings occurred in the end of gestation, and where the placenta was not lying over the os uteri, Merriman found that the discharge of the liquor amnii either stopped the floodings, or reduced so greatly the quantity of the bleeding, that it became no longer dangerous. By Rigby, under similar circumstances, the same remedy was tried, and in fifty or sixty cases with the best success. Set down, therefore, the discharge of the liquor amnii among the remedies for suppressing the floodings of the latter months. Nor is it difficult to accomplish this; carrying one or two fingers of the left hand through the os uteri up to the membranes, usually felt with facility, take a bluntly-pointed instrument, say a female sound, for example, sharpened for the purpose, and with this instrument puncture the membranes and discharge the liquor. Under this operation the hemorrhage becomes diminished, perhaps immediately; and although the ovum may now and then, perhaps, be retained till the end of the nine months, especially if opium have been given, yet more generally in two or three days afterwards the whole is expelled, and the womb emptying itself, contracts thoroughly, so that the flooding becomes entirely suppressed. In all cases, in the middle or latter months, where there is an obstinate efflux of blood from the uterus, remember that you have in the discharge of the liquor amnii a most powerful remedy; in some of the worst floodings, when other remedies are failing, you lacerate the membrane, and the hemorrhage ceases.

By manually emptying the uterus, so as to allow of a thorough contraction of its cavity and constriction of its fibre, the bleedings

may be suppressed, though not in all cases, in many. There are different modes in which this evacuation may be accomplished; sometimes in floodings, we find the child's head has been pushed down into the vagina, where we may apply a pair of forceps upon it, and draw it forth. In other cases, and these are far more frequent, the child is lying entirely above the brim of the pelvis in the cavity of the uterus, so that no parts of it, except the presentation, can be felt. Now in cases like these, the hand may be introduced into the cavity of the uterus, and by the operation of turning already explained to you, the fœtus may be brought away. Even in the earlier months, although the manual evacuation of the womb is undesirable, the parts being thin and lacerable, should the removal of the ovum be deemed necessary, it may sometimes be accomplished. With the utmost gentleness lay the left hand in the cavity of the vagina, passing the genital fissure for this purpose. Then the bulk of the hand remaining in the vagina, let the first and second finger be passed up into the cavity of the uterus, so as to reach from mouth to fundus, while the womb, felt above the symphysis pubis, is by the action of the right hand pressed down upon the fingers of the left. By this manœuvre, the contents of the uterus may be brought within reach and control, and, by a small action of the fingers, may be easily got away. Though practicable, this operation is of dubious use; if unskilfully or unwisely performed, it is surrounded by the risk of laceration. Thus sometimes by the insertion of the fingers, sometimes by the operation of turning, and sometimes when the head of the child is lying in the vagina, by the judicious application of the forceps, the fœtus and placenta may be abstracted; when, as before, the womb contracting, and the muscular fibres becoming constricted, little further discharge of blood need in most cases be apprehended.

We now pass to the consideration of the third sort of cases, frequent in consultation practice, and of the utmost importance — I mean those cases in which large quantities of blood have come away from the uterus, in the latter months more especially, and where you find, on entering the apartment, that the woman is already dead; or, as more frequently happens, that she is lying in a state nearly approaching to asphyxia. To two dead females I have been called in the course of one night, both destroyed before my arrival by large eruptions of blood from the womb. And should you meet with cases of this kind, as they must occasionally fall within the circle of a comprehensive practice, your first consideration relates to the removal of the child.

In some instances, the fœtus, low down in the pelvis, or lodging in a dilated os uteri, might be abstracted with little disturbance by turning, or the forceps; in others, the os uteri being shut more or less completely, the fœtus could not be extracted without violence, by the natural passages, and the razor, and the Cæsarean incisions, would, in a scientific view, be a preferable method of

delivery. In deaths from flooding, however, the fœtus will rarely be found alive. The interrupted placento-pulmonary function frequently destroys it even within the uterus, perhaps while the mother still survives. Considering, as I do, that the fœtus ought certainly to be saved from drowning; if practicable I should, in my own family, wish the child to be withdrawn, if this could be accomplished without violence; but should delivery be impracticable without laceration of the uterus, or the Cæsarean incisions, I should forbid it. Before the patient is utterly dead, and past all feeling, to remove the fœtus by *violence is a horrid cruelty*, which we must, I am sure, all of us with one voice condemn; and considering how possible it is that some sensibility may still inhere, even when an ordinary practitioner little suspects it, as the security of the mother is always paramount in British midwifery, in conformity with this principle, I think that severer measures ought to be forbidden altogether, interdicted even in those cases where the woman appears to be dead. Generally, however, under these large discharges of blood, on arriving, you find your patient still living, but in a state approaching to asphyxia: she is pale and ghastly, and cold and gasping, and, in great measure, insensible; her heart flutters, there is little or no pulse in the wrist; she lives still, but the grave yawns under her, eager for its prey; move her from one side of the bed to the other, she dies; disturb the clots by passing the fingers into the vagina, she dies. It is clear that when patients are in this condition, trembling upon the very brink of destruction, there is but little time for you think what ought to be done; these are moments in which it becomes your duty not to reflect, but to act. Think now, therefore, before the moment of difficulty arrives. Be ready with all the rules of practice, which those very dangerous cases require.

Called to a case of this kind myself, the first thing I do is to direct my attention to the circumstances under which these bleedings occur; for these floodings may occur in the pregnant, or the unimpregnated, — in the earlier, or in the latter months, without the placenta over the os uteri, or with a placenta partially, or altogether covering this part — before the birth of the *fœtus*, or afterwards — before the birth of the placenta, or afterwards — or, in twin cases, one child being born, the other may remain in the uterus — or, when the secundines have to appearance been removed, a large piece may still remain in the uterus, the accoucheur not suspecting it, in the latter, still more frequently in the earlier months. These points are of no small importance. On reaching, therefore, the apartment of your patient, the attention should be directed immediately to all of them; this is easily done, if you have them on your mind, and should certainly by no means be neglected. What are the circumstances under which the floodings occur?

If I am called to one of those cases in which the patient approaches to asphyxia, I am anxious to know whether the bleeding

has been arrested; sometimes it is going on, more frequently it has been arrested, or the discharge which continues is a mere show. To determine a point so important, I would recommend you, with as little disturbance as may be, to clear the blood from the genitals; and then, again, with as little disturbance as may be, to spread cautiously a napkin between the hips and the bed; this done, another clean napkin, interposed between the thighs, may be applied against the orifice of the vagina, and if there is no further discharge the napkin will retain its whiteness, but if the bleeding continue, blood will make its appearance on the napkin in the form of concretions and a red patch, broader or more circumscribed, according to the quantity of the discharge. Of the abundance of the bleeding you may judge from the colour; if redder, then larger orifices are open — if paler, then smaller; or, at all events, in the latter case the discharge is smaller, and of course less likely to be productive of danger.

In cases of this kind also, where the patient is approaching to asphyxia, I am very anxious to know whether the system be on the rally or the decline — a most important inquiry. Now, sometimes, you find the patient is evidently improving from half hour to half hour; her hands and feet are warmer — her pulse is stronger — her countenance is brighter — her mind is livelier — in a word, there are all those appearances of amendment which, after you have been in practice a little, you expect to meet with when the strength is rising. On the other hand, however, you are sometimes meeting with different cases, in which, although the hemorrhage is stopped, the patient is evidently on the decline. After floodings immediately, women sometimes die in a moment, but more frequently in a gradual manner; and over the victim death shakes his dart, and to you she stretches out her helpless hands for that assistance which you cannot give, *unless by transfusion.* I have seen a woman dying for two or three hours together, convinced in my own mind that no known remedy could save her; the sight of these moving cases first led me to transfusion. Experience is the only mean of acquiring the knowledge of these mortal symptoms. To obtain the tact which will enable you to determine with promptitude and certainty whether death must ensue or not, the cases must be seen. For a full enumeration of the symptoms which indicate the death arising from inanition, I must refer you to the history of them already given; it may not, however, be amiss, in the way of repetition, to remark here, that to myself the fatal termination is principally foreshown by a certain ghastliness of the countenance — by a restless disposition to change posture — by a long-continued cessation of the pulse in the wrist — by a gasping respiration, like that produced by running — and by a jactitation of the arms and legs, joined with a feeling of most oppressive anguish. From these symptoms, associated with the ordinary signs of inanition, women seldom escape; nor must it be forgotten, that they sometimes, in a fainting fit, die

suddenly, or more slowly, without the harbingers of dissolution to foreshow the event.

One more remark, and I conclude. If you are called to cases in which there has been great discharge from the uterus, the patient lying in a state approaching to asphyxia, you will sometimes find her, as you enter the room, supplicating that her posture may be changed, and this more especially if under the flooding restlessness have supervened. Now I wish you to understand, most distinctly, that the change of posture is very dangerous, and that frequently, when it is allowed, it does not afford the expected relief. When a great quantity of blood is come away from the uterus, even where the patient is rallying and likely to do well, and where, perhaps, for two or three hours together, but little discharge has occurred, were you to direct the patient to be lifted from one side of the bed to the other, you might cause a terrific disturbance of the circulation, or a renewal of the discharge destructive to life. One woman, in whom a large bleeding had been suppressed, perished in this manner under my own observation; to appearance all danger was over — like a thunder-cloud it was passed away — when, unhappily, she rose to the erect posture; the flooding was renewed, and she sank. Many years ago this case occurred to me, and made a strong impression on my mind. A patient, on whom I performed the operation of transfusion, and who was very effectually relieved by it (ultimately recovering), two or three hours afterwards was so urgent with me to allow a change of position, that my feelings subduing my judgment I assented. From this disturbance of the body, however, such perturbation of the heart ensued, that for three or four minutes together I thought the patient would have sunk; and, really, the recovery might more properly be ascribed to our good fortune than our good practice. Only the other night I was called to a patient, in whom there was a large discharge of blood from the uterus, and where the woman was reduced to a state approaching to asphyxia, though likely to do well; this woman, contrary to my wishes, was moved, and for a few minutes her life seemed, of consequence, to be in danger the most imminent. So that to revert to the rule with which I set out, and which these facts illustrate, remember, that if you are called to cases in which the women are lying in a condition approaching to asphyxia you ought never without need to move them at all — and, above all, you ought not to move them into the erect posture. One change you may, *perhaps*, sometimes make with advantage, gently and cautiously raising the legs, so as to bring the blood upon the heart and central parts of the body, you may with equal caution and gentleness withdraw the pillows, and suffer the head to sink below the shoulders; the head, if the woman chance to be already lying close upon the edge of the bedstead, being allowed to hang down over it a little way, so as to facilitate the access of the blood to the brain. All this, I say, you may perhaps do, in these cases,

with gentleness, with caution — shall I add, with fear and trembling, but, after all, I am not altogether convinced of the excellence of the practice, nor dare I dogmatically pronounce, that it is either very useful or very safe.

LECTURE XVII.

MANAGEMENT OF FLOODINGS, WITH ASPHYXIA.

When closing the former Lecture we were engaged in making some observations upon the management of those cases in which large quantities of blood come from the uterus, the patient being reduced of consequence to a state approaching to asphyxia, a subject which I now resume.

Called to a patient labouring under the asphyxia of flooding, probably one of the first impulses which you may feel will be to empty the uterus; and you may either consider of the propriety of discharging the liquor, if not discharged already, or you may revolve in your mind whether it would be proper or not to carry the hand into the uterus, with a view of abstracting the placenta, fœtus, or whatever else may be lodging there. In these cases, however, of vast importance, and in their occurrence by no means uncommon, awake — reflect — beware — before you make your decision; for, on your determination the life of the patient depends. In these cases of alarming collapse, be it remembered, that, if the flooding be suppressed, you are on no account to interfere manually, not even an examination should be rashly made; disturb the clots, and you renew the bleeding, and the patient gasps — heaves — breathes deeply — throws her arms about upon the bed, and dies. Even though that woman be on the rally, — her extremities warmer, her pulse larger, her mind recovering, her strength increasing — should there with these symptoms be little or no return of the bleeding, it is improper manually to interfere; disturb the clots, and she may perish still. But if, asphyxia threatening, the bleeding from the womb return copiously, by gush or clot, or more abundant draining, you may then, perhaps, be justified in having recourse to manual operation — the discharge of the liquor, the removal of the fœtus, the abstraction of the placenta; operations, no doubt, of danger in these cases, even under the best management; but, on the whole, *perhaps*, of less danger than the continued flooding which they are intended effectually to suppress. I regret that, on a point of practice so important, I am compelled to unsettle my opinion by the interjection of the dubitative — *perhaps;* but, after all I have seen of these cases, I am not sure that it would not be better to refrain from manual oper-

ations altogether, when the collapse is extreme, even though the flooding return somewhat copiously, the suppression being confided to other remedies before enumerated, or to the effects of the faintness. These are dreadful emergencies, and surrounded with difficulties; refrain, your patients occasionally sink; if you do not deliver, blame is frequently imputed. I acknowledge whatever opinion might be formed by these about me, for myself, however I had rather feel within that the patient perished under the operations of nature, than that my meddlesome hand was unhappily auxiliary to her destruction. Perhaps the rule may be laid thus: when asphyxia threatens, if the flooding be stopped wholly or in great measure, watch and assist the patient in other ways, but refrain from manual operation and disturbance of the clots. On this point of practice, among competent judges, there can, I conceive, be no doubt. Further, when asphyxia threatens, should the flooding pertinaciously or obstinately return, an occurrence by no means very frequent, though in vigorous women manual operations may be justifiable, provided they contain the only remaining hope of effectually stopping the bleeding; yet, if the patient be weakly and much collapsed, and the danger of death from the hand be immediate, it may be wiser to abstain altogether from manual disturbance, and to commit the woman to her own resources, assisted by the other means of suppression not obnoxious to the displacement of the clots. In coming to our determination, the degree of disturbance likely to arise from the operation must be considered; for example, to puncture the membranes and discharge the liquor amnii, may be proper enough, when the introduction of the hand into the cavity of the uterus would be certain death. But, in the third place, what is to be done, if manual operation have been rejected at this season of collapse, and, if the woman, rallying completely at the end of a few hours, the ovum still remain in the uterus — the system being, of course, exposed to a return of the bleeding; why, under these circumstances, should the flooding not return, manual operations are still to be deprecated; but, should the bleeding recommence, then, with promptitude, the patient having vigour to sustain the operation, this should be had recourse to, and the liquor ought to be evacuated, and the fœtus or the placenta ought to be taken away, according to rules which will hereafter be explained and prescribed.

Where a great quantity of blood has been lost, and the patient is lying in a state approaching to asphyxia, it may be proper, perhaps, to apply cold to restrain the bleeding; and, if the hemorrhage is going on, and if there is some warmth still remaining about the body, the application of cold, as formerly prescribed, by means of a napkin or otherwise, may be fitting enough. Even in other cases, where the application of cold does not appear to be necessary, it may be proper to administer it in forms less extensive and intense, because the popular opinion is in favour of it; a little vinegar and water may, therefore, be applied externally. Nevertheless, I conceive, myself, where patients are reduced to the state

I am now supposing, and are already exceedingly cold, so that if you touch any part of the body it is chilly as a corpse, this topical refrigeration would be of very little use; nay, there are some cases in which, if you were to push it far, it might be hurtful, the woman being so greatly debilitated, and the heart and arteries being prone to a cessation of action altogether.

I know not that it is generally necessary, in the cases we are now considering, to plug up the vagina; because, on applying napkins as a test of the bleeding, in the way formerly prescribed, you will often find that the hemorrhage is altogether stopped; there is no rush of blood, and no large clots are coming away, the circulation is too low to admit of this; you find merely a small stain on the white surface of the cloth. If, however, the plug is not likely to do mischief by displacing the clots, in those cases where the hemorrhage is disposed to continue, I would recommend a closure either with sponge or tow, or old cloth; old cloth I should prefer. After floodings, (I mean those cases in which the bleeding comes on after the child is away, and before or after the birth of the placenta,) are, as before observed, scarcely fit for the plug; at least, it is only a dexterous accoucheur who could use it in such cases with advantage. The cases best calculated for plugging are those in which much blood has been emitted from the uterus, the patient collapsing, and the bleeding continuing, while the fœtus or ovum still remain within the uterine cavity.

When women are much reduced, in consequence of large quantities of blood lost from the uterus, their digestive powers are in a great measure destroyed; and certainly, there is often such irritability of the stomach, that whatever you may introduce into the cavity is speedily rejected. On both these accounts, you will find in flooding cases, the more formidable floodings especially, that to nourish women in this state, as some medical orators have advised in our debating societies, is by no means an easy task; nevertheless, as nourishment, and the support that is to be derived from it, are of no small importance, when women are approaching to a state of asphyxia, supplies of aliment ought by no means to be overlooked. Respecting the advantage of solids, my mind is not made up. Broth; eggs differently prepared; bread and milk; or milk itself, may any of them be recommended; the last two have the advantage of being easily procured and prepared. Broth, or beef tea, requires a longer preparation. Half a pint, or a pint, remaining in the stomach, may, if I may be allowed the expression, be deemed a sufficient dose.

In those cases where women are approaching to a state of asphyxia, you will find sometimes beginning to manifest itself that restlessness which I have mentioned more than once. The patient wishes to change her position; she throws about her feet or arms, and perhaps, in some convulsive moment, suddenly she turns round, though perfect quiet, so necessary to her safety, has been strictly enjoined. Now, as far as I understand the

practice, it is in these cases, after much blood is come away, and the patient of consequence has been gradually reduced and disposed to irritability, that the large doses of opium, advised by Hamilton and others, should be administered. If the fœtus is still in the uterus, and it is not your intention to carry up your hand and bring away the child by the operation of turning, it would perhaps scarcely be proper to give opium in the larger doses, for it might prevent the pains and the spontaneous evacuation of the womb, though it is not so powerful in this way as mere speculists might suppose. The case best calculated for the opium is, I conceive, that in which there is much restlessness, and where the child has been taken away, or where it is your intention to perform the operation of turning. It might, indeed, be plausibly argued against its being largely given in those cases, that opium may prevent the thorough contraction of the womb, even after the fœtus has been abstracted — a serious accident, contraction of the womb being one of the principal securities against bleeding; for, as I told you before, when the womb contracts the muscular fibres contract, the vessels becoming contracted also, are closed as it were by so many ligatures. Notwithstanding this plausible objection, however, after what I have seen of these contractions at the bed-side, provided I expected any solid benefit from the opium, I should not on this account be disposed to delay its administration. When opium is administered in those cases where a great deal of blood has been lost, it should be measured according to the effect which it exerts upon the system; for ordinary doses will not operate on a woman half dead already from the eruption of the blood. From two or three drachms, by measure, of the tincture of opium, it may be necessary to give in two or three hours, provided you mean it to operate powerfully on the system, the practitioner commencing with one hundred drops, and repeating a dose of fifty or sixty every twenty or thirty minutes, according to the effect produced. Be firm in the use of the opium, but not rash: you may safely give the larger doses if you give them under the control of a judgment sagacious and attentive. When the opium is beginning to act on the system, then of course your hand should be stayed; if the irritability be much diminished, if your patient become drowsy, if there is a tendency to that garrulous delirium which you may often observe in women where they have taken narcotics, then you ought to discontinue its administration. In the fourth volume of the Medical Chirurgical Transactions, two cases of large bleeding from the womb, attended with very dangerous symptoms, are recorded by Stewart. In those cases opium was employed, and they afford a very excellent illustration of the doses women take, and the effects that are produced by them. I was not, however, from a careful perusal of these cases able to convince myself that it was by the opium that the women were preserved. This seems very dubious; but it appears, according to Stewart's statement,

that the opium had great effect in diminishing the irritability; and at all events it is obvious it did no harm. The intrepidity and decision shown by Mr. Stewart are well deserving of commendation.

So long as there is no danger lest the patient sink out of a state of asphyxia into the hands of death itself, so long you are to look upon fainting not as injurious, but beneficial. You ought not, therefore, to excite the patient in these cases merely because she is lying in a state alarming to the friends; but if, on making your observations, you perceive that the system is sinking lower and lower, instead of being on the rally, it then becomes necessary at all hazards to support the heart and vascular system; and, independent of transfusion, one of the most effective remedies for accomplishing this is stimulus, according to the effect it produces. For ordinary purposes, I think you will find the *alcoholic stimulus* answer as well as any other; and it has the advantage too of being generally at hand. Rum, brandy, geneva, any of the three may be administered; but perhaps to rum the preference may be given. In the diluted state you may sometimes administer it — say water one part, with one part spirit; but provided your patient can bear it, (as she frequently may, under the inertness of the inanition,) the pure spirit will be preferable. If we give the spirit pure, a smaller measure will be necessary, and there will be less risk of its being rejected by the stomach. According to the effect produced, this stimulus must be administered; and you will perhaps be surprised to hear me state, that I have given eight or ten ounces of the pure spirit in the course of two or three hours; that is, half a pint or more, and this to young persons too, who, it may be, in the whole previous course of their lives, had been wholly unaccustomed to the stimulus. The truth is, like all the other parts of the body, the stomach is half dead under the inertness of inanition; and being in this way, half dead from the lowness of the circulation, it is not capable of being acted on by the spirit in the same manner as it would be provided its condition were more lively and susceptible. Half a wine-glassful of rum may be administered at a dose. Where it operates, it usually operates, I think, more speedily than opium. Wait for twenty or thirty minutes, sometimes ten or fifteen only, and you may see pretty clearly whether the spirit will act on the system or not; if the lips are reddening, the pulse rising, the extremities warming, you have attained your object, the patient is on the rally, and, for the time at least, no further quantity of spirit need be given; for it is not to stimulate too highly, but merely to touch the brim of the balance, and turn the wavering scale in our favour, that the spirit is given at all. But, on the other hand, if in the course of ten or fifteen minutes the spirit already administered is not observed to act, a repetition of the dose becomes necessary, till at length you reach those larger and extraordinary measures to which I before adverted.

Debating societies have, I conceive, no place in scientific medicine. Societies for discussion proffer many advantages, bu t the distinction is too often overlooked. In the eagerness of debate you will sometimes hear it asserted, that if women are well managed in their floodings, the after-floodings especially, however alarming may be the symptoms, death will never occur. These assertions I have myself not unfrequently heard: but the intrepidity of assertion must sometimes be rebutted by equal intrepidity of unbelief. To declarations of this kind I always turn a deaf ear. With these eyes I have seen the fact to be contrary. With these eyes I have seen that, under the best received modes of treatment sometimes, and still more frequently under management of average excellence, women must occasionally sink. Nor is it, I think, arrogating too much to affirm of those who make these assertions, that if not negligent or insincere, they can have had but few opportunities of seeing those more dangerous forms of flooding on which they are presuming to dogmatise. My observations being entirely free from personality, I deliver them with more freedom. In medical discussions, to deal rashly and roundly in asseverations of this sort, refuted by experience, can have no effect with men of sense and observation beyond that of diminishing or destroying confidence in the authority of the speaker. To talk in this manner is to butt against the fact; it is (pardon the comparison) — it is to run the head against a brick wall; or, if I must use an expression less homely, but not more forcible or appropriate, it is to impunge blindly and with certain discomfiture against the solid materials of truth.

When women, after large and dangerous floodings, are to appearance recovered, it sometimes happens in the course of a few days or weeks subsequently, that they are carried off by vomitings, purgings, and hydropic affections, and more especially by purgings. After the floodings, inflammations, and it may be excoriations of the intestinal membrane supervene; and these give rise to irritability and diarrhœas, and gradual or more sudden declensions of the strength, under which, notwithstanding all the care that may be taken of the patient, she occasionally sinks and dies. It sometimes happens, too, and if I were to examine the pages of my adversaria I think I should be able to adduce several instances of this kind, — it happens sometimes, that women suddenly and unexpectedly perish under flooding, or, as before observed, they sink after the stoppage of the bleeding in a manner more gradual; they are one, two, three hours, or perhaps longer in dying, the latter cases being, I think, by far the more frequent. After delivery, perhaps, the patient lying quietly upon the bed a few minutes before or after the birth of the placenta, a sudden gush of blood takes place from the uterus to the amount of two or three pints; instantaneous collapse of the strength ensues, and from that time forth it may be, though little more blood is lost, the patient's doom may be looked upon as sealed. It is true, indeed, that at

times she rallies, and it may be rises so conspicuously that, according to ordinary prognostics, you would expect her to do well; but then again she sinks, to rise and sink again, like the flashes of the half-extinguished taper, while, with a reluctance which avails her nothing, she is gradually subsiding lower — lower — lower, till at length she suddenly drops into that grave from which, under the use of received remedies, no human art can save. Of twenty cases of flooding well managed, I believe that perhaps nineteen will frequently do well; but probably you will find the twentieth to be of the kind which I have been here describing, and for this we ought to be prepared.

If *transfusion*, with all its defects and excellencies about it, should be found hereafter to be as safe as other received operations of surgery, (venesection, for example,) it may then, I conceive, be performed in those cases where there have been large discharges of blood from the uterus, although the danger arising from the inanition may not be very imminent. In the present state of knowledge, however, and until we have further proofs of its efficacy and safety, in cases which are not desperate to appearance, I should not recommend the operation of transfusion; but, if you have under care a patient in whom the flooding has been copious — in whom, further, the womb has been emptied, and the hemorrhage stopped; should this woman, as I have myself on several occasions seen, be sinking gradually into the grave, so that, even to those who have seen much of floodings, the case appears to be without hope; under such circumstances, I affirm that it is highly proper to have recourse to the operation of transfusion, provided we are competent to perform it. On the human body no needless experiments should be made. I speak the truth when I declare, that I have not to charge myself with having ever by speech, writing, or conduct, in my whole professional career, among rich or poor, in any way endeavoured to give countenance to a contrary principle; but nevertheless, I maintain, that desperate emergencies occur in which the use of this *not* desperate remedy may become a sacred duty. Nor is it very difficult to distinguish these emergencies, asking yourselves these simple questions: — If I were myself in the same state of inanition with this poor creature — or, more interesting still, if some woman near to me, and more than dear, were in the same state of inanition — should I wish transfusion to be performed? Provided you have an ordinary share of sense and experience, those piercing whispers which enter the soul, the whispers of conscience, I mean, will tell you plainly whether you ought to operate or not. 'Do as ye would be done by;' in surgery as in ethics, the principle universally applies.

In performing this operation, which I shall presently explain to you more at large, it is not necessary that you should inject any very copious quantity of blood, for in the present state of our knowledge it would be unwise to endeavour by large injections to

raise the patient at once from a moribund condition to a state of vigour. What is the ordinary average measure of blood required in order to turn the trembling balance in our favour, has not as yet been clearly ascertained by facts and observations. From what little I have observed, however, I should suppose that from half-a-pint to a pint may be considered as a very amply supply; and I feel persuaded that of those women who have sunk under floodings, the greater number would not have been lost, could they but have retained the last ten or sixteen ounces of the blood which they have lost.

Although I have said an operation of this sort is not to be rashly prescribed, and although in the present state of knowledge it ought to be confined to those cases only which, according to our honest judgment, must be considered as desperate without it; yet let me add further, in the way of caution, that where there is need of the operation, it is obvious the sooner it is performed the better. I have myself seen two women die, whose lives I feel persuaded might have been preserved to society, had transfusion been more promptly begun. Anxious to refrain from the operation, while there remained a hope of life without it, I delayed the use of the syringe so long, that before transfusion could be commenced, the patient in both instances was breathing her last. For this delay I was perhaps to blame; but I reflected, it may be not without reason, that the operation was novel; I had heard the clamour which had been raised against it, and I was solicitous that I might not, by having recourse to the operation under circumstances where the need for its use was ambiguous, bring upon myself the suspicion of being a thoughtless enthusiast, who was disposed on all occasions, however slight, to have recourse to the transfusing syringe — and upon the operation itself, the discredit of being supported by such an advocate. To give you a summary, then, of what appears to me to be important on this point, I conceive that, under the large eruptions of blood from the uterus, if well managed, in general, say of nineteen cases of twenty, your patients, though they may alarm and shake your nerves, will nevertheless ultimately do well, and transfusion will not be required. I maintain, however, notwithstanding what is asserted to the contrary, and I boldly maintain, for I am irresistibly borne out by facts, that under the best and most judicious treatment, and certainly under treatment of average excellence, dissolutions may occur sometimes so suddenly that you have not time to act; more frequently in a gradual manner, so that you see the patient sinking slowly, by little and little, into the grave. Now, in cases of this kind, when the patient is sinking gradually, I am not sure that transfusion might not be proper, even though the ovum were still in the uterus; but certainly such cases are not adapted to the splendid success of the operation, for so long as the womb is unemptied the bleeding may return, and the blood may be lost again as soon as it is injected; but when the uterus has been emptied,

and the hemorrhage has been stopped, (and of all the cases these are the most common,) then, under the conditions stated, the syringe should be tried, provided the case be obviously desperate without it — provided, too, you feel conscious that, lying in the situation of the patient, you would wish the essay to be made on your own person. The operation once obviously necessary, beware of delaying it too long — beware of subjecting yourselves to the painful mortification of seeing your patients perish at the entrance of the port — sink at the very moment when you are at length prepared with the very operation which might have saved them. From six to ten ounces of blood will probably be found sufficient to turn the wavering balance in our favour. From one or two friends, males in preference to women, this supply may be obtained; a large injection is not desirable; reaction of a lively kind will sometimes come forward on the subsequent day. Adhere to these rules, and you cannot wander far from the line of duty, and let me ask now, where is the folly — where the enthusiasm of all this?

You have not, I trust, forgotten that in the former lecture it was observed to you, that of all means for stopping the discharge of blood from the uterus, the most effectual by far is the evacuation of its cavity, either by taking away the child, removing the placenta, or discharging the liquor amnii, according to the circumstances of the case. Although, however, I stated to you the fact, that by so doing you may, in ordinary cases, generally arrest the further discharge of blood, or at all events so far diminish the discharge that it becomes no longer dangerous; yet those who reflect will observe, that in mentioning this practice I did not lay down any rules which may enable you to decide in what cases you ought to interfere with your manual practice, and in what cases you ought to refrain. From laying down those rules I then purposely abstained; for I thought they would be better understood if given in another part of the subject; and to this part we are now arrived.

On conversing with your obstetric friends, or on reading some of our best obstetric authors, such as Denman, for example, or Burns, you will find, as usually happens, that by different practitioners different indications have been marked out, by the intimations of which they endeavour to decide, at any given time, whether it be proper that they should deliver the woman by manual operations, or whether they should leave her to her own resources, confiding entirely to those other remedies which I have already explained at large. In determining about the delivery, their are some, not unskilful practitioners, who are guided mainly by the measure of the blood discharged, and by the effects the discharge produces. Called to a woman labouring under copious flooding, if they find her approaching to a state of asphyxia, they are anxious to open the uterus as fast as possible, abstracting promptly afterwards both the child and the placenta; but if, on

the other hand, they find that the patient is vigorous, and that the measure of the blood lost is by no means copious, from manual operations they refrain. Nor is this rule without its recommendations; with one capital defect, however, it is justly chargeable, as it directs us to deliver in those cases of asphyxia in which the disturbance of the clots is DEATH!

In determining, again, whether they should deliver or not, there are other accoucheurs who consider the effects produced by the discharge of the liquor amnii; and if the liquor amnii have not been discharged, and the hemorrhage be proceeding, they rupture the membranes, and if the flooding continue, although the water have been evacuated, they take the child away; and in many cases this may be found a very excellent rule. In determining whether the child should or should not be abstracted by the hand many are guided by the relaxation of the parts and the facility of delivery: if they find that the vagina is thoroughly relaxed, and that the mouth of the uterus is open—large as a crown-piece, for example — delivery being so easy, they think it may be well to introduce the hand into the uterus to bring away the child, the placenta, or whatever may be lodging there. But on the other hand, if under large floodings they find that the softer parts are rigid, an occurrence not common — or if, as more frequently happens, the mouth of the womb be shut altogether, or not broader than a sixpence, they refrain from interfering, laudably fearful lest, by thrusting the hand into the uterus, they should lacerate the softer parts. By the age of the pregnancy many practitioners are guided: and this rule has the advantage of being one of very easy application, for the period of gestation may generally be ascertained. Now in the latter months, say the last three or four, under dangerous bleedings, their general practice is to discharge the waters, or as soon as possible, to carry the hand into the uterus and bring away the ovum; the relaxation produced by the bleeding generally facilitating this; while, in the earlier months, say the first three or four (as women of ordinary health and strength rarely sink under the floodings), they refrain altogether from manual operations, and confide in other means for suppressing the bleeding, or in deobstruents, of which the most valuable is perhaps the ergot.

In determining respecting the propriety of manual delivery, Rigby has recommended that we should be guided by the situation of the placenta, and if the placenta is lying over the mouth of the womb, whether partially or completely, the hand, he says, should be carried up into the cavity of the uterus, and the child should be brought away. Now this, as a general rule, is certainly correct, and to it, I believe, all experienced accoucheurs adhere. On the other hand, if the placenta is not lying over the mouth of the uterus, either partially or completely, we are advised by Rigby to content ourselves with the mere discharge of the liquor amnii, a beautiful obstetric operation, which in these cases usually renders the condition of the patient secure.

Beware of being deceived by the rule, (if rule it can be called,) which has deceived many, I mean that of waiting for the pains in flooding cases. The *silly rule* is the title by which I would designate it; and I use the expression, though quaint, under the hope that it may become fixed upon the mind, and may, by the caution it intimates, prevent your being misled. In cases where large quantities of blood are coming away from the uterus, the womb becomes paralytic; the pains which were commencing leave the patient, and the larger the bleeding the less the pain, more especially in the latter months. Understand, therefore, if the want of pains is to be considered at all, that it is rather to be considered as an indication to interfere than to refrain; for you have not, I trust, forgotten, that till the womb is evacuated the woman is never secure; and unless manual means be adopted, if the pains and uterine efforts are wanting, in the latter months especially, how can the ovum come away? You are called, perhaps, to a case in which the blood comes largely from the uterus; you ask the patient, and properly, whether she feels the uterine pain. No, is the reply. Will you, then, act upon the silly rule? — will you tell the patient, 'come what may I can give no manual assistance, because you have no pain!' None, I hope, bred in this school will be guilty of such folly. In flooding cases, the truth is, with the pains you have very little to do; it is with the flooding — it is with the danger, that it is your duty to contend; and from them, if possible, the woman must be rescued, whether there be pain or not. A woman sitting quietly in her apartment, being seized suddenly with a large eruption of blood from the womb, a practitioner, specious enough, but of small experience in these matters, was promptly called to her assistance. Wo be to the woman under these circumstances, who is deceived by an exterior. Have you any pain? was the question. No, was the reply. So, acting on the silly rule, without even examining whether the placenta was lying or not over the mouth of the uterus, the practitioner went his way. The flooding continuing, he was summoned again, and again he acted on the silly rule; there being no pain, he still determined that nothing could be done; so he went home, and went to bed, and went to sleep! — how one envies such philosophical composure! But we bear the dangers and misfortunes of others with truly admirable resignation. In the middle of the night his repose was broken by the tinkling of his bell, the noise of his knocker, and the clamour of voices — a third summons had arrived, to the house of the patient, therefore, he went a third time, and then he found her dead, — with the child in the uterine cavity, and the placenta lying over the mouth of the womb, the parts so relaxed and open that the abstraction of the ovum would have been a very easy task. Beware of the silly rule. In general, to die is no jest — nor is it a jest to die even by the kick of an ass.

Having said thus much respecting the rules and principles by

which, in flooding cases, practitioners endeavour to ascertain whether they ought or not to interfere manually in the delivery. I proceed in the next place to prescribe briefly some plain rules by which yourselves may be enabled to decide this nice and important point. Not that I hope, in laying these principles before you, to reduce your practice to maxims so correct, definite, and sufficient, that adhering to them as to the rules of arithmetical operation, you cannot err; but this I persuade myself, that keeping within the influence of these maxims, with the help of a little common sense and common experience, you cannot run out eccentrically into the more extravagant errors.

Remember, then, that in floodings, whether earlier or later, but more especially in the later floodings, if the patient be lying in a state approaching asphyxia, all manual operations are in general improper — disturb the clots, and the patient dies. Watch, therefore, nor venture to resort to the use of the hand till the return of the strength, and the copious or dangerous renewal of the bleeding may render the operation at once necessary and more secure. Remember, further, that if you are called to floodings of the first, second, or third month, although from such flooding often repeated, one miscarriage following another, the health may suffer severely, yet with an ordinary share of vigour in the patient, notwithstanding all our alarms, death but rarely occurs; and, therefore, manual operations not being necessary, should be rejected. It may, indeed, be sometimes advantageous to empty the uterus by means of one or two fingers. This I do myself, in part, because my hand is small; and in part, perhaps, because I may have an overweening confidence in my manual skill. You, however, I strongly dissuade from this practice, till you have been formed by experience to the higher and nicer parts of obstetric operations. But to proceed. When called to floodings of the latter months, in which the patient, not in a state approaching asphyxia, still retains her vigour, remember, in the third place, that it becomes your duty to ascertain by examination whether the placenta lie or not over the mouth of the uterus. Now if, the placenta covering the mouth and neck of the womb, whether partially or completely, you cannot deliver by turning, you may, perhaps, advantageously puncture the membranes when accessible; but if, on the contrary, turning may be accomplished, then by this operation the ovum ought to be promptly brought away; not that this practice is wholly unattended with danger, but that, under the given circumstances, it is, on the whole, the best we can adopt. Remember, lastly, in latter floodings, when the placenta is not lying, whether partially or completely, over the mouth of the uterus, that as soon as the flooding becomes dangerous, the liquor amnii should be discharged, and although the continuance of the flooding may now and then demand the operation of turning afterwards, yet in the majority of cases such a necessity but rarely occurs; so that to this beautiful operation, you may safely venture to confide.

For the sake of humanity, allow me again to caution you against the silly rule. For the sake of humanity, allow me again to remind you, that from whatever cause the flooding arises, whether in the earlier or the latter months, before or after the birth of the child, before or after the birth of the placenta, so long as the woman is lying in a state approaching to asphyxia, the disturbance of your hand is death. Ah, how I commiserate those unsuspecting but ill-fated victims, who are destined to perish by forgetfulness of this caution! At this moment live the women who must sink under this mal-practice. Not to introduce the hand into the uterus in any case till pregnancy is advanced beyond the sixth month, is a good general maxim, though not universally applicable. Not to introduce the hand into the uterus before the sixth month of pregnancy is completed — not to pass the hand into the womb, unless the disc formed by the dilatation of the os uteri be as broad as a crown-piece, are both of them good general principles of practice, and ought to have their influence; but they are not universal. When the woman is utterly dead, the child may be abstracted notwithstanding. In alarming floodings, it is often safer for your reputation to have another opinion.

LECTURE XVIII.

AFTER-MANAGEMENT OF FLOODING.

When discharges of blood from the uterus have, in a great measure, subsided, you ought not too hastily to leave your patient. Though not frequently, yet it sometimes happens after these floodings have been arrested, that spontaneously, or in consequence of some movement of the patient, the flooding is unexpectedly renewed; or it may be, although the discharge of the blood have been stopped, and the patient have rallied somewhat, yet that she again sinks, to rally and sink again until ultimately she dies. When the flooding is stopped completely, and the discharge has been sparing, to remain with the patient is scarcely necessary; but it is a good rule when the blood has been lost in large quantities, that you continue with your patient for some time afterwards — (four or six hours, for example,) — a longer or shorter period, according to the degree of apparent danger.

When the floodings have been arrested, you will be asked by the nurse, and those around you, whether the patient may not be put into bed and made comfortable, an expression which every Englishman so well understands. If the loss of blood be small, and the patient have thoroughly rallied, to *putting to bed*, as it is phrased, there is no obvious objection; but recollect that where

there have been large effusions of blood, such as we have been engaged in considering, to put the patient to bed would be an operation of no small danger. In a former lecture I think it was observed to you, that one patient I had seen perish, in consequence of being moved too soon after the bleeding; and more than once after very large bleedings, I have seen a great deal of vascular commotion produced, not without alarming symptoms, merely by lifting a woman from one side of the bed to the other,—and this, notwithstanding the hemorrhage had been stopped for three or four hours. For myself, when women, having bled very profusely, are reduced to a state approaching to asphyxia, it is my custom to direct that the patient remain twelve or twenty-four hours as quiescent as may be; I had almost added without stirring hand or foot. While she is lying in this state, napkins may be placed about her, to protect her person from the wet and soil, and to contribute, as much as possible, to her comfort; were you to disturb the patient much, even by performing these small offices, death itself might, in the *extremer* cases, be produced by a renewal of the bleeding, or sudden commotion of the vascular system.

If hemorrhage be going on externally, in general it cannot be overlooked; the patient tells you that she feels the blood trickling or running away; and if she lie near the edge of the bed, sometimes it bursts forth so copiously that you hear it fall upon the floor. It sometimes happens, that unobserved hemorrhages are going forward internally: blood clots over the mouth of the uterus; the uterus becomes dilated in consequence of accumulations in the uterine cavity. All this may be overlooked by the accoucheur. Nor must it be forgotten, that, when a woman is lying in the middle of a very large bed, a sort of hollow may form in the middle, in consequence of her lying there; and in this hollow, unperceived, a considerable quantity of blood may now and then accumulate. After large flooding, therefore, recollect that hemorrhages may be going on unmarked, the blood sometimes accumulating in the centre of the bed, and still more frequently lodging in the uterine cavity, danger stealing on the patient in silence and unknown. Watch, therefore, otherwise you may now and then approach the bed-side and find your patient dying, or approaching to a state of asphyxia. The external hemorrhages, or those in which you have an accumulation in the bed, are easily detected. Sitting by the bed-side, and asking how the patient feels, you learn, perhaps, that her strength seems as if it were going from her, and that she perceives the blood running, and, on examination, you observe that faintness is approaching; symptoms which lead to an inspection of the bed, when the bleeding is easily detected. Nor is there a difficulty in making out an internal bleeding: lay your hand upon the abdomen, above the symphysis pubis; feel for the uterus; grasp it, and should it be small as the head of the full-grown fœtus, then there is no blood in its cavity; but should you find it as big as

the womb at the seven months, and further, on compression, should clots of blood come gurgling away, then there is no doubt that internal hemorrhage has taken place.

After smaller losses of blood, as at other times, it seems proper enough to bind up the abdomen, (by Gaitskell's bandage, for example,) though this is less necessary, so long as you are placed at the bed-side, and grasping the womb with the hand. But when the eruption of blood has been copious — with a view of securing the contractions of the uterus, and thus preventing the return of the hemorrhage, we ought to compress the abdomen with more than ordinary care. I may observe simply, that after a bandage has been applied, the uterus, grasped by the interposed hand, may be kept in the contracted state, when the case is more pressing; or, in less urgent emergencies, the bandage may be used with the interposition of a pillow over the abdomen, in front, if you wish to increase the pressure, and, in this manner, the contracted condition of the uterus may be rendered more sure, and internal bleeding may be prevented. Externally to the dress, or over the body-linen, the bandage may be put on; the less disturbance the better. It is useful to apply these bandages before delivery takes place, when they may be easily tightened afterwards.

I am accustomed, and to you I recommend the practice, to apply clean napkins to the genitals even after the hemorrhage has ceased, removing and inspecting these napkins occasionally. If there is no blood on them, or but little, it is clear that copious hemorrhage cannot be going forward; more especially if, before inspection, we have made any pressure on the uterus, so as to urge forth any blood that may have accumulated there; on the other hand, if we find a broad red stain, with clotted blood upon the napkin, that the flooding is prone to return there can be little doubt.

If a hemorrhage is arrested, you may be asked, by the nurse and friends, whether it is not proper to administer *nourishment?* Now, if you find the patient is improving, the limbs warming, the lips reddening, the pulse enlarging, the frequency of the cardiac beat diminishing, the energies of the mind reviving, — in such a case, it is wise to let well alone; I would dissuade you from interfering with nourishment, for nourishment taken into the body where women are much reduced from the loss of blood, owing to the debility of the digestive organs, will probably be of little benefit. But, if the woman is sinking lower continually — gradually subsiding into the grave — in order that nothing may be left undone, nourishment should, I think, be administered. From the first, the bleeding ceasing, moderate quantities of nourishment may be given; to solids the patient may have a disgust; from the state of the œsophagus, she may not be able to swallow them; at all events, in this exhausted condition, she may be unable to chew them well; but milk, broth, eggs prepared in any way, if soft, may be recommended. From three to six ounces of liquid nourishment may be

thrown into the stomach every three or four hours, especially if it seem to agree.

When large hemorrhages have occurred, you will sometimes be surprised to see the rally which is effected in the course of four-and-twenty hours, — the pulse, it may be, is sunk below 100; the cheeks are red, the energies considerable. On the other hand, if the discharge of blood have been large, and if the woman is of that sort of constitution (often met) which cannot sustain itself against the hemorrhage, various symptoms are likely to manifest themselves in the course of the first two or three days, of which the following may deserve your notice: — For women to have a great deal of headache is by no means uncommon, and with it is joined a certain lightness, aggravated when the head is raised from the pillow, the symptoms, according to Dr. Haighton, not being relieved by leeches and blisters. My valued relative imagined, not without good reason, that the cephalic symptoms arose from the want of blood in the vessels, and conceived that they would therefore be most effectually relieved by nourishment introduced into the stomach. For some time, for a week or a fortnight, for example, this *cephalalgia* may be continued; but, though somewhat alarming on account of the lightness, it seldom terminates in any serious cerebral attack. With irritability of the alimentary tube, the patient is occasionally assailed; vomitings sometimes, and still more frequently purgings. This diarrhœa, if moderate, may do the patient but little injury; but, should it prove, as it not unfrequently does, both obstinate and copious, under the purging the patient may be carried off. An atonic, fretful, perhaps an aphthous inflammation of the mucous membrane of the stomach and the bowels, terminating in excoriation, I suspect to be the proximate cause of this disease; and I look upon it as produced by general ill health, the result of the inanition; this inflammation, or inflammatory erythism, as in the nose, the lungs, or urethra, producing an excitability of the part. *Opium*, *chalk*, *aromatic confection*, *hæmatoxylon*, *dry diet*, and the removal of the patient into the country as soon as possible, are the best remedies. Dry diet and change of air have sometimes the best effects. Hume, the historian, laboured under a diarrhœa, which ultimately destroyed him; yet it is remarkable, that having occasion to make a journey southward from the Tweed, he found more relief from this excursion than from any other remedy. It was with the knowledge of this fact upon my mind, that I tried the effects of removal in a desperate diarrhœa, occurring after flooding, under my own care — "*Remedium anceps satius quam nullum.*" Though the experiment was dangerous, and the patient reduced to the last degree of debility, by my advice she was put into an invalid carriage and sent to Stamford Hill, so ill, that her apothecary became her attendant, as it was doubtful whether she would reach that place alive; yet although, with little or no benefit, we had been trying all the more effectual remedies while

she remained in town, and in Bishopsgate too, a part of the metropolis not the most unhealthy, in the course of a few days after her arrival at the Hill, the diarrhœa of itself ceased, and a full impression was left upon my mind, that the journey and change of air were the remedies to which her recovery was to be referred.

Of course, after these large eruptions of blood from the uterus, the patient becomes very much reduced in her strength. Now, for this weakness, mere drugs are of very little avail; time and patience, and the occasional use of medicines to meet particular symptoms; supplies of nourishment, large as the stomach may bear; country air; the sea-shore; — these are the remedies. The woman wants a full supply of blood; transfusion, day after day, may perhaps be recommended hereafter, in order to furnish this supply; but, till the safety and efficacy of the remedy in these cases has been proved and acknowledged, it is to the other medicinals which have just been enumerated that we must confide this supply.

There are some women who suffer dreadfully in consequence of their miscarrying in the earlier or later months, (but more frequently in the earlier,) becoming pregnant again too soon, miscarrying, perhaps, no less than *nine* or *ten* times in the course of *two or three years*, and losing each time large quantities of blood. Of course these repeated floodings very greatly reduce them. In such cases, I would strongly recommend abstinence from further communication for a time, so as to allow the genitals to recover. Independently of abstinence from connubial intercourse, there are various preventives of impregnation, but I do not think it proper to disclose them.

Under large losses of blood from flooding, it is not often that aqueous effusions occur, yet now and then in bad constitutions, at first exhibiting inflammatory tendencies, the dropsical diathesis appears. If the legs or abdomen are the seat of the accumulation, there is less danger, but the patient may soon perish from effusion into the chest or head. More than once I have seen women who have survived the first losses of blood, sink in this manner; and one of the severest disappointments I ever experienced within or without the circle of my practice, was of this kind. A most interesting young lady, the idol of her domestic circle, — after a complete resuscitation, by transfusion, sunk under an effusion into the chest and pericardium. I had received the thanks of the friends; two very beautiful children in the lisping and imperfectly formed articulation of childhood, attempting too to stammer their thanks, when, two or three days afterwards, hydrothorax showed that it had been gradually stealing upon its victim, and, after a short struggle, the patient sunk. There were extensive old adhesions in the chest, the consequence of severe measles in earlier life.

I shall now close the remarks which I have to offer generally on this tedious, but very important subject of flooding, by pointing out some three or four *errors*, which, in moments of negligence,

you are likely to commit, in the hope that I may guard you against them. In the first place, then, in the earlier months of pregnancy, where you have eruptions of blood from the uterus, if you think you are possessed of more than ordinary manual skill, you may, perhaps, feel an inclination heedlessly to thrust your hands into the uterus, in order to abstract the ovum; now, I have told you already, that although, in the earlier months, where the accoucheur is very skilful, there may, it is true, in individual cases, be an advantage in bringing away the ovum, by the introduction of the hand into the vagina, yet, as a general practice, it is to be condemned. *Unnecessary* manual interference, therefore, in the earlier months, is an obstetric error, against which you ought to guard. Remember, however, that in the latter months you may fall into another great error of the opposite kind; I mean the neglect of the delivery where the operation really is necessary, an error which may prove the destruction of the patient. In obstetrics generally, the rule is, to err, if you must err at all, on the side of *indolence.* Err rather by not interfering where assistance is necessary, than by pragmatically and unnecessarily interfering where help is not required; for delivery being a natural process, the occasions in which you may interfere needlessly are endless; but in general midwifery, the cases in which you may err, by refraining from interference when really required are few. Nevertheless, feeling as I do, that this is a most wholesome principle, I very cordially agree with Denman, that, in flooding cases, we have an exception to the rule. These cases are so dangerous, and so much depends upon the practitioner, and more especially upon the emptying of the uterus, that, in these cases, I would more willingly pardon the too active, than the inert. More expecially when floodings occur in the latter months, I would caution you against delaying the delivery too long, when delivery is really required. If you attend to the general rules which have been laid down on this point, I think you cannot wander far from the right path.

There is yet another error against which you will do well to guard, and that is, the use of too much violence and hurry in conducting the delivery. In flooding cases, when delivery is required, there is danger, lest you abstain from the delivery too long; there is danger lest, having abstained till your patient appear to be on the point of sinking, you then, anxious to deliver her while breath remains, proceed with a rapidity or violence which may bruise, tear, destroy. Now, therefore, while your consciences are clear, before it is too late, I caution you against this formidable error — beware of delaying the delivery too long; and if delivery have been long delayed, beware, too, of using a force and promptitude of extraction greater than the parts may safely bear; — in scientific midwifery, violence can have no place.

I have told you that there are cases, and, indeed, I may say on the whole, many and most important cases, where, after great dis-

charge, the patient is lying in a state approaching to asphyxia; now, in these cases, you may fall into the error of sitting down at the bed-side without reflection, to disturb the clots, whether by examinations or by the introduction of the hand into the uterus or the vagina. Remember, that if, by operations of this kind, you break up the concretions and renew the hemorrhage, under the renewal of the bleeding, the woman will most probably sink. Against such a careless excitement of the bleeding, therefore, be, I entreat, upon your guard; consider again, and then reconsider the rules prescribed. If the bleeding of itself recur copiously, it may be necessary to operate; but so long as the discharge is arrested, wholly or in great measure, unless the patient be rallied thoroughly, refrain from manual operations. Perhaps it may be hereafter found in some of these cases, that, before delivery, transfusion may with advantage be premised, and of this operation I now proceed to speak.

TRANSFUSION.

The operation of transfusion I take to be of so much importance to mankind, that, having made it the subject of much thought and experiment, I seize with pleasure the opportunity which now offers of treating the topic more at large. The general idea of transfusion, it is probable, has occurred to many in former times; and I am willing to believe, that it might not be unthought of by those mighty masters of antiquity, who, first discovering the principles of things to us who have followed them on the face of our planet, have left us only the less splendid honour of exploring those tracts of knowledge, which they originally pointed out. It is, however, to modern industry that we are indebted for bringing this operation into notice. Lower, in our own country, and Denis among the French, towards the middle of the seventeenth century, first demonstrated its practicability, by observations on the human body and experiments upon brutes. To men of this kind I conceive it is — to men who not unsuccessfully make it their ambition to contribute discoveries in art or science to the general fund of human knowledge — that an age or country owes its lasting splendour. The mass of mankind seem hitherto to have been scarcely capable of distinguishing who are, or are not, their friends. Hemlock, or the cross, has too often been their reward; while the general ear has been wearied with the applauses of those, who, without honest principle, for their own aggrandisement only, have wielded the brute force of the species. Among the swinish multitude, as Burke was pleased to call them, each successive slaughter has raised still louder clamours, as we all know that the animal from whom he draws the comparison is never so noisy as when perishing under the knife. But the age for this destructive folly, has, I trust, already begun to pass away. Now that personal interests are vanished, who among civilised nations cares, in present

times, to applaud a Jenghis — or a Timour — or a Nadir — or any other unprincipled devastator of days gone by — brute favourites of fortune — the destroying angels, or wholesale carcase-butchers of the East. As knowledge steadily advances, these men of mere violence will, I trust, appear before their brethren, the rest of the species, in their true characters: while the names of Socrates, of Plato, of Euclid, of Archimedes — shall I add it — of Timoleon, the Liberator, with still increasing veneration and applause, will, I persuade myself, descend to the latest posterity of that mankind whom they have benefited.

If I have myself any claim, however small, to rank among the supporters of transfusion, it lies entirely in this; that, undeterred by clamour or skepticism, I have made it my endeavour to bring the operation into notice; and to show further, by experiments on animals, and observations on the human body, that transfusion may be performed by the help of a syringe, under the use of which human blood, of the kinds used alone fit for the operation, may be infused into human veins. In the original operation brute blood was employed; but this, at least, if taken indifferently from animals, and injected in large quantities, is fatal. For the original operation the presence of some animal in the bed-chamber was necessary: what, then, was to be done on an emergency? A dog, it is true, might have come when you whistled, but the animal is small; a calf or sheep might to some have appeared fitter for the purpose; but, then, it had not been taught to walk promptly up the stairs. In this condition of it, the operation, little more than a name, was great in its danger, but of small advantage in those very cases of sudden bleeding, in which it seemed most to be required.

Notwithstanding the sneers of his comic countryman, who placed him among the clouds, it was the just boast of Socrates, that he had brought down philosophy from her airy speculations into the commerce of mankind; and much it is to be wished, that some able and long-lived experimenter would do the same kind office by physiology. To me, on weighing the considerations before enumerated, the great desideratum in transfusion appeared to be, that being brought from our lecture-rooms, to which it had so long been confined, it might, in some improved form, be rendered safer and more serviceable at the bed-side of the patient. Now, although it was evident that transfusion might be (promptly perhaps, however, not safely) performed, by means of a tube simply, provided the artery of a bystander could be laid open; yet a more ready mode of rendering the operation practically useful appeared to be, by adapting to its performance the use of the syringe; and with the hope, in the end not disappointed, of accomplishing this point, I was led into the following train of investigation: —

That the blood of one animal may be substituted for the blood of another animal, of the *same species*, is a principle which has been placed beyond the shadow of a doubt. Repeatedly, as others

before me, I have drained the dog till it lay in a state of apparent death, the blood ceasing to issue even from a tubule inserted into the carotid towards the heart, the circulation therefore being entirely arrested. The animal being in this condition to all appearance dead, I have transfused from another dog, and found, where the operation has been well performed, that the dog, to all appearance irrecoverable, has soon afterwards arisen from the table, as if it had experienced a resuscitation from the dead. It is true, indeed, that for two or three days a little cachexia, or ill-health, has hung about it; but, in the course of a few days more, the animal has seemed to recover itself completely, becoming as well as before the operation was performed.

By many it has been imagined hitherto, that in the operation of transfusion, the blood of one genus of animals may be indifferently substituted for that of another genus; the blood of the sheep, for instance, for that of the dog; the blood of a calf, for that of a man; a doctrine which I had myself imbibed. Accordingly, in some of the first experiments which were made, and which, as far as we can learn, were by no means very successful, the blood of the brute was substituted for that of the human body; but it was first suggested to me by one of my own esteemed and respected pupils, Dr. Leacock, that the blood of one genus of animals may not with impunity be substituted indifferently for that of another genus. Draining dogs of their own blood, he supplied them from the sheep; and found that, though the animal was resuscitated for a time — the blood of the sheep circulating in the veins, and performing the office of the canine, so that the dog was able to run about the room —yet, in the course of ten or twenty hours (I speak from memory as to the term) the animal invariably died. Experiments, to be found at large in the "*Researches*," I have myself made with the human blood. From five dogs I abstracted their own blood, and by means of a proper instrument intromitted the human blood in its place; of those dogs one died on the table; two or three lived for a few hours, then sinking; and some surviving for four or five days, expired, after many cachectic symptoms. So that it seems, from experiments of this sort, that the blood of one genus of animals cannot, in large quantities, be substituted indifferently for the blood of another, without occasioning the most fatal results. Hence eminently arises a necessity for the employment of the syringe, as this enables us in human hemorrhages to use human blood; for even though a horse or a sheep were at hand in the chamber, it is very doubtful whether the blood of that animal would save a woman sinking from bleeding, and I am sure it would be dangerous to try it.

By a variety of experiments I long ago satisfied myself, even previously to the publication of the cases already before the profession, that blood may be transmitted through the syringe as through the heart, without becoming unfit for the purposes of life. Deterioration it suffers, it is true, but not such deterioration as

may render it unfit for the animal body. Several dogs I have drained so, that they lay in a state of asphyxia—in truth, appearing to be altogether dead. Dogs thus prepared I have replenished by the use of the syringe with blood from other dogs, and they have done as well as if transfusion had been performed by means of the tube. It has not been in a few, but in many experiments that I have found this result; and how could I multiply experiments too much on a subject so important? Who that venerates reason, and has the love of mankind on the heart as well as on the tongue, will dare to tax such physiology as brutal?

To convince myself more satisfactorily, another scheme of experiments was made, varying in circumstance, yet turning on the same principle, of which the following is a rude idea: —

Directing towards the heart a tubule inserted into the femoral or carotid artery, and the corresponding veins, I placed near to these tubes a cup, in communication with a proper apparatus; then allowing the blood to rush from the artery, as it gathered in the bottom of the cup, by means of an instrument called the *impellor*, figured in my "*Physiological Researches*," I absorbed the blood into the barrel of a syringe, and returned it to the veins, so adjusting the return to the eruption from the artery, that more than an ounce of blood was never allowed to accumulate in the cup of the syringe at one time. To omit less decisive observations, in some of these experiments, the operation was carried on for twenty or thirty minutes together, the blood rushing from the artery during the whole time, so that all the blood in the body of the animal must have passed the basin, and this, too, repeatedly, the dog, however, not appearing to suffer materially in consequence.

From experiments like these, given at large in the "*Medico-Chirurgical Transactions*," and the "*Researches*," I convinced myself that in the dog, at least blood may be transfused by the syringe, without becoming unfit for the purposes of life; nor was it therefore, I conceive, with enthusiasm or rashness that I first came to operate upon the human body, but with a mind rationally prepared to the best of my power, by previous reflection and experiment.

These principles established, there are different ways in which transfusion may be performed; and I shall first briefly state to you the method approved now by experience, and which for general purposes may at present be deemed the best. First, then, the operation may be executed by means of a well-constructed two-ounce syringe, air secure, made of brass, tinned internally, not offensive with oil, of course perfectly clean, and to be used in the following manner: — One or two bystanders (males are preferable to females) being in readiness to supply the requisite quantity of blood, the arm of the patient should be prepared as follows: taking a scalpel, at one cut, if tolerable dexterous, you lay bare the bleeding vein, which opens on the eye under the knife,

the patient being so far from suffering in this part of the operation, that frequently she is not aware that it has been done. The vessel manifesting itself, you take this short incurvated probe, which you slide beneath it at the lower extremity of the incision; afterwards, with a well-sharpened lancet, laying open the vein to the extent of about a line, that is, about one-eighth of an inch; afterwards intromitting cautiously, at this orifice, the tubule of the syringe, so as to satisfy yourself that when you operate the entrance will be easy; at this time perhaps a little blood oozes out. This preparation made, you bind up the arm of the person who is to yield the supply of blood, laying open the vein in the usual manner, but making the orifice rather free. In a conical tumbler, of large diameter, the blood may be conveniently gathered; and into the syringe, previously washed and chilled by transmission of water milk-warm, the blood is to be absorbed from the point of this tumbler through this long tubule, in such manner that, although the whole of the blood is not to be taken up lest the air should be drawn in; not more than a dessert-spoonful is to be allowed to accumulate at once in the bottom of the vessel; in truth, it is not in the glass, but in the barrel of the syringe that the blood should collect. This tubule should, as you see, be long enough to throw the barrel of the syringe above and beyond the brim of the tumbler, so that it may be completely out of the way. That it may enter the vein more easily, the end of the tubule should be bevilled like the teapot spout.

Two ounces of blood from the arm being absorbed in this manner, holding the syringe vertically with the tubule above and the handle of the piston below, you slowly urge the piston onward, till, together with all air, about a dessert-spoonful of blood has been expelled; and then, closing the nozzle by the apposition of the tip of the finger, lest the piston descending by its own gravity fresh air should be absorbed, you give the instrument the horizontal direction, and proceed to insinuate the blood into the vein. On approaching the arm of the patient, perhaps you find the orifice obscured by the blood; touch the vein with a sponge, and the aperture may be read as clearly as the letter of a book. At this time an assistant may gently press the vein where it lies across the probe, which will intercept a further exudation, for the circulation is so low that it is easily arrested. These preliminaries premised, without trepidation, with that calm and measured movement of mind and body, the result, not of mere animal spirits, but of that confidence which arises from a mind well prepared, you proceed to deliver the blood, cautious not to interpose unnecessary delay. For this purpose, the tubule being insinuated into the vein, to the extent of half an inch towards the heart, it is your next office to infuse the blood into the vessel, and very nice and critical is this point of the operation. What the heart in women or men might bear in a state of vigour I know not, but reduced as it is in these cases, feeble as the limb

which refuses to sustain them, it cannot support a sudden influx of the blood. To infuse too slowly is an error no doubt, for, lying in the syringe, the blood is every moment becoming more and more deteriorated; but to inject too rapidly is a still more fatal error: gorge the cardiac cavities, and the patient may perish as suddenly as if shot through the heart. With moderated velocity it is that the blood should be infused, and most cautiously, when the collapse is great. In pressing forward the piston, from moment to moment, fix your eye on the countenance, and if all is well, then proceed more boldly; and if the lip quiver, or the eyelid flicker, or if there be restlessness or vomiting, though these are not fatal symptoms, yet it is better to suspend your operation until they subside, as in the present state of our information there is good cause for alarm; and let me add, that after waiting in this manner, you must not return to the injection until you have obtained a fresh supply of blood. If the first two ounces load, it is best to wait a few minutes, say six or eight, before more is injected; but if these first two ounces are well received by the system, proceed immediately to inject other two afterwards, waiting for eight or ten minutes, till the whole have duly circulated over the body, and, in some measure at least, have renewed its vigour; under the extremes of weakness, this caution becomes *especially* necessary. Sixteen ounces of blood for the female system is a large aggregate quantity — eight or ten are more sparing; four or five may, in delicate cases, turn the scale in our favour. If our object is simply to save life, the smaller quantities must be injected; if to restore vigour, the larger. Whether we transfuse or not after floodings, reaction is apt to come on next day. The entrance of a single bubble of air, though not fatal, is always to be deprecated. Inflammation of the vein is a neat topic of declamation; after the danger is blown over, listen with decent attention; till then you have not time to think about it. If the blood dribble from the arm which supplies you, or if it be slightly coagulated, it is unsafe, if not wholly unfit, for use. Wash the syringe between each injection. Watch the arm lest it inflame afterwards. If the respiration be stopped, it is, I fear, in vain to transfuse; if respiration is at its last gasp, the hope is small — a sudden influx of two ounces would, I think, certainly destroy in these cases. Would the heart bear, at proper intervals, doses of half an ounce? if the respiration be steady, you are almost certain of success. The best syringes I know of are those of Laundy, Weiss, and Reid. Laundy's are made according to my own whim; of course I think them preferable. Transfusion from artery to vein, or perhaps even from vein to vein, might be accomplished by tubule simply; could you, however, obtain readily those who would supply you in this mode, the arterial transfusion especially would require caution; if the heart were very feeble, an impetuous influx would destroy.

By means of this gravitator, blood may be transmitted. Water poured into the cup runs down the flexible vertical tube, which

hangs below, expelling the air; being itself retained in the canal, by turning the tap, when not more than a tea-spoonful remains in the point of the conical cup. The air being expelled in this manner, the tubule at the end of the vertical tube is inserted into the vein, and the arm which supplies the blood is held over the cup, as is usual in ordinary bleeding. A fall of two or three inches, perhaps less, is sufficient to insure the gravitation of blood into the vein — so empty, that it makes no resistance; the blood runs out of the cup into the body, as through any other vessel with leakage. The cup must not be suffered to run empty, as air will be carried in; the rapidity of the flow may be regulated by this tap in the throat of the tubule. I have contrived this instrument, in order that we may have it in our power to pass the blood direct, without delay, from one body to another. To learn the ready use of the gravitator, you should, when bleeding patients, transmit their blood through the instrument as if you were operating. In this world of imposition, I suppose, we may be forgiven if we avoid objections, by pretending that this is done to prepare the blood for examination. Let us now consider some of the objections against transfusion.

Against this operation it may be urged, as against most operations, that it is not without its dangers; and it may be so. But this is no reason why we should lay it aside, if in any case it be necessary; for, in truth, every operation of surgery has its danger: amputation has its danger — the operation for hernia — the introduction of the catheter — the cutting for the stone. As every operation is attended with more or less danger, unless it be proved, which it cannot, that the injection of blood is attended with more surgical danger than ordinary, why should we urge this in a solitary manner as an objection against transfusion? Again, it is sometimes objected, that the operation may be needlessly performed; and it may be so. How often will you, in the course of your practice hereafter, give medicine, with no advantage to your patient, though it may be with some advantage to yourself? How often is venesection performed needlessly! How often has lithotomy been performed needlessly! How many legs have been taken off, where, if the patients had been under better surgery, they would still have had their limbs! Why, then, are we to bring this as a solitary objection to the operation of transfusion? If you transfuse too copiously, you may take the blood out again, but when you overbleed in inflammation, what will you do? It may be said again, that the operation may sometimes prove unavailing, and so it may; for he would be a bold man indeed who would venture to affirm that this or any operation ought always to succeed. You amputate a limb, but sometimes the patient dies. You perform venesection, yet the inflammation proceeds notwithstanding, and destroys the patient. So that if you candidly weigh in your minds the arguments that are raised against transfusion, you will find they are objections which do not lie singly against this

operation, but against surgery at large, — nay, against the whole of the medical art itself; sometimes not without danger, sometimes used without need, sometimes not producing any obviously beneficial effects, and yet, after all, so well calculated on the whole, for the advantage of mankind, that no people, civilized or barbarous, are entirely without it. Why, then, I ask again, are these objections urged alone against transfusion? Is it apathy — is it the trouble of learning — is it negligence of reasoning — is it that unnamed and unacknowledged feeling, which devours itself — a very Proteus in the variety of decent garbs which it assumes?

After all, among the members of a liberal profession, like that of medicine, I persuade myself that these objections, even when urged without due candour, arise from no unworthy motive; perhaps from an honest conviction of the essential uncertainty of our art, and the risk which there must be of incurring new dangers, while we are flattering ourselves that we are the discoverers of new remedies.

The more discussion, the more objection and defence the operation has to undergo, the better. If it be grounded in error, let it perish; if in just principles, it must survive. From the most violent conflicts of opinion, truth has nothing to fear; though long to us, to her a thousand years are as but one day — a point — a nothing in the eternity of her duration. Oppressed, among us, beneath the chaos of human follies and errors, she must, she will emerge unhurt at last — unchangeable as her Author. By the mere force of durability, she must ultimately stand alone — solitary amid the wreck of those perishable materials by which, for a time, she is overwhelmed. To her the living spirit of philosophy — immutable, immortal, infinite, eternal truth — to her, parent of all knowledge — fountain of light, may be addressed, without perversion or hyperbole, the sublime apostrophe of the poet —

> "The stars shall fade away, the sun himself
> Grow dim with age, and nature sink in years,
> But thou shalt flourish in immortal youth."

When on the subject of transfusion, I should be guilty of criminal injustice were I to forget to mention with applause the names of Doubleday and Waller. Their exertions stand in need of no commemoration from me, but I may be allowed to remark, that, whatever advantage may be hereafter derived from this operation, to them mankind will be largely indebted for it. Through evil report and good report they have laboured devotedly to uphold and practise it; and, I trust, that in the approbation of the public, and that complacency of feeling which arises from the consciousness of not having ill deserved, they may find the full remuneration of all their exertions.

LECTURE XIX.

FLOODING.

Our remarks on floodings generally being brought to a close at our former meeting, I proceed to enlarge a little on those different species or varieties of flooding, which you are likely to meet with, dividing them into those which are occurring in the first three or four months of pregnancy, and those which make their appearance in the last three or four, — the earlier and later floodings, as they may be called.

Before I enter on the consideration of the earlier floodings, it may not be amiss, on the very threshold of our subject, to premise a few observations on the appearances of those substances which, at this period of pregnancy, are found to come from the uterine cavity.

I may observe, then, at the outset, that rarely, yet occasionally, the whole ovum is expelled from the uterus entire ; in shape and bulk like a pullet's egg, containing a cavity of appearance immediately to be described, with liquor, and sometimes a fœtus not bigger than a garden bean. More frequently, however, disruption proceeds the expulsion of the ovum, the parts of which escape in succession ; first the liquor escapes, and then the embryo, if this be not already vanished, to be followed ultimately by a fleshy mass, which constitutes the most important part of the whole structure. In this fleshy mass, when washed and immersed in clear water especially, you find a hollow of bumpy (tubercular) surface — smooth — polished — invested with a semitransparent glistening membrane of pearly appearance, through which the dark red of the structure over which it lies may be obscurely seen. With this fleshy mass, which at first glance resembles a clot of blood, membrane is marginally connected, floating in the water, and forming, in the entire condition of the ovum, a part of the cavity in which, as in the hollow of the egg, the embryo is lodging. Before I proceed to the next appearance of the ovum, it may be proper to remark, that in the earlier months the fœtus is of very small size, compared with the bulk of the secundines, so that the fleshy mass, with which the embryo is in connexion, may be large as half the hand, when the embryo itself is no bigger than a single joint of the little finger. For the ovum to come away in a third manner, is by no means very uncommon ; the fœtus, it may be, being first expelled, or not appearing at all, while the secundines follow by pieces, one portion after another, till the whole be discharged from the womb. To those who are accustomed to inspect the ovum of the earlier months, if the structure be in ordinary condition, it is by no means difficult, on examination, to determine whether a part only, or the whole, be away ; but those

practitioners who have paid but small attention to these matters, are liable to deceive themselves with the persuasion, that the uterus is completely evacuated, when in reality a part of the ovum still remains in its cavity. The embryo is so small at this early period, and the secundines are so large, that at first glimpse one-half of them seems proportionally of bulk more than adequate to the fœtus. Beware, therefore, of falling into error here — beware of presuming that the uterine cavity is empty, when a portion of the secundines still remains; for this portion, lodging in the hollow of the uterus, may keep up the draining as effectually as if the ovum lay there entire. Hereafter, you will understand more clearly, that the ovum, composed of two parts, the one the fœtal portion, made up of the embryo, enclosed in a delicate membranous bag, covered with a fine shag; the other, the maternal, consisting of the fleshy mass, which, in good measure, encloses both the embryo and its receptacle, corresponding with the placenta of the full-grown ovum of nine months. It sometimes happens, that the fœtal part of the ovum is expelled alone in one day, while the placenta, or remaining portion of the ovum, escapes from the uterus a length of time afterwards, an interval of uncertain duration, of a few hours, sometimes of a few days, being interposed; the woman during the whole term having all the symptoms of miscarriage, as, by the presence of the placentar portion of the ovum, the distension of the uterus is kept up. In cases of this sort, you are more exposed to deception, because the embryo, with its membranous cyst and liquor amnii coming away, has, to the experienced, the appearance of a complete ovum; the inexperienced only, however, can be deceived in this manner; for if your eyes have been accustomed to the inspection of miscarriages in the earlier months, the want of the placentar part of the structure must appear obvious at once.

For women to conceive of three, four, or five ova at once is very rare; but the occurrence of twins is by no means unfrequent. Now, in miscarriages, sometimes a single ovum may come away, another, or the greater part of another, still remaining behind in the cavity of the uterus. Not to mention that we now and then meet with cases in which, together with a healthy ovum, there forms in the womb a fleshy mass, (a mole, as it is popularly called,) in which no traces of ovum being expelled, and this mass remaining behind in the uterus, and, as in ordinary miscarriage, keeping up the discharge of blood. In difficulties of this kind the prudent and very circumspect practitioner will probably soon detect the nature of the case; but those who are rash, or have seen little, may be deceived, inferring, with too much certainty, a thorough evacuation of the uterus, because a complete ovum is come away. The error, not of speculative nature, is to be deprecated in a practical view; for the bleeding from the uterus continuing, yet not being understood by the practitioner, it is probable that he may not have recourse to the more judicious means

for its suppression. When the case is ambiguous, examination is the only diagnostic on which we may with certainty rely.

In miscarriages, it is by no means uncommon to see no traces of the embryo, dead, perhaps, and dissolved in the liquor amnii, like sugar in water, or food in the gastric juices. Occasionally we find parts of the embryo only, the head more especially; and it well deserves commemoration, that now and then the embryo dying, and melting perhaps in the second month, the secundines are retained, and continue to grow till they acquire the bulk of the same parts in a nine-month ovum, so that, to the astonishment of the unpractised, there at length issues from the womb a large placenta, with its membranes and water, without the fœtus which might be supposed to tenant them. When the ovum dies in the earlier months, it may be retained till the close of pregnancy, the fœtus, without growing or decaying, remaining quietly in the cavity of the womb till, in the seventh or eighth month, perhaps, labour pains occurring, the ovum is at length expelled, but not of the bulk, which, from the age of the gestation, we should have anticipated. Hydatids sometimes form in the ovum, and, if I may be allowed the expression, devour it; sometimes a part only becoming converted into their substance, so that they lie embedded and concealed in the placentar structure; sometimes the whole — or, with the exception of a few vestiges, the whole — being consumed, so that in place of the ovum, nothing but these animalcules remain in the uterus. Sometimes they form a cluster large enough to fill a wash-basin, or a vessel more capacious; sometimes they are altogether of much smaller bulk. Much bleeding accompanies their expulsion when their growth has been great, nor is the flooding always sparing when their bulk is much smaller. While adverting to the changes which the ovum undergoes before its expulsion, I must not forget to remind you of those shapeless masses, membranous or solid, before mentioned. Of these it may be observed further, that sometimes there are several; more generally they are single; like the ovum itself, they vary much in bulk, sometimes not larger than the pullet's egg; occasionally large as the fist, the child's head, the child itself, or even larger. Masses like these may give rise to symptoms similar to those produced by ordinary miscarriages, and they are best managed on the same principles as other flooding cases.

Thus much, then, respecting the different substances which escape from the uterus in the earlier and middle months.

At small expense you may make for yourselves preparations of the substances which come from the uterus, and I recommend you, when in practice, by all means to do this, as it is desirable that their appearances should be well known to the accoucheur. From ten to fifteen glasses would probably contain all the specimens your practice might require.

MANAGEMENT OF FLOODINGS IN THE EARLIER MONTHS.

When floodings occur in the earlier months, if the patient be robust, strong, and full of blood, and if she be left in a great measure to her own resources, the practitioner prescribing on general principles for occasional symptoms, she will generally do well; and very satisfactory it is to the young accoucheur to remember this, as, like an anodyne, it may soothe and tranquillize the mind when he is sitting at the bed-side of the patient. Without meaning to alarm you needlessly, it is proper I should remark, that women do not always recover, even in the earlier months, and certainly not always in the middle parts of pregnancy, when the discharges become larger, more especially if the patient have flooded much in preceding miscarriages, and have thus been much reduced in blood and flesh. Under these earlier bleedings, in some few instances, women sink from inanition, and still more frequently, when they escape with life, the tenor of the general health becomes greatly impaired, so that for months or years together they labour under the cachexia produced by bleeding; dying, perhaps, at last of hydropic, enteric, or other affections. As sometimes, though rarely, they are attended with danger, and as they always impair the health and create much uneasiness and anxiety to the patient and her friends, the different varieties of earlier floodings are well worth the study of the accoucheur; and I proceed, therefore, to remark on them.

Of miscarriages in the earlier months, there are some remarkable for the rapidity of their progress; in the morning the patient is well; in the evening, after a *fright*, *long walk*, or after the ordinary bustles and fatigues of her establishment — sometimes, too, without any obvious cause whatever, she is suddenly seized with an eruption of blood from the uterus; fainting follows — then a rally — then pain — then expulsion of one of those substances just described; the process, perhaps, being completed in the course of one or two hours. The evacuation of the uterus is followed by a contraction of its cavity, and a cessation of the bleeding; the patient recovering completely in the course of a few days, so that scarcely a trace of the accident remains. Of all the forms of earlier flooding this is most to be desired. More generally, however, it happens in a way more harassing to the practitioner, that the expulsion takes place in a gradual manner; induced by some imprudence, or arising, it may be, without any obvious cause. At first, perhaps, a few ounces of blood are lost, and then the patient, keeping herself cool and composed, the hemorrhage ceases, returning when she rises and begins again to stir about; and thus, bleeding at one time and free from hemorrhage, wholly or in great measure, at another, she gradually sinks into a state of inanition, becoming pale, cold, faint, so that she is compelled at last to confine herself to the sofa or the bed. Meanwhile, as the

bleedings proceed, pains begin to form — cutting, grinding, sawing, at first, then foreing and parturient; more blood flows from the uterus, and sooner or later the eontained substances come away under the forms before described. Days, weeks, sometimes one or two months or more, may be oecupied by this process, and the total quantity of the blood lost may be large, the constitution suffering much in eonsequenee, and in some few cases death itself being the result.

There is yet a third variety of hemorrhage well deserving of notice, I mean the hemorrhagy under whieh you have merely a partial evacuation of the uterus. A woman is seized, perhaps, with an eruption of blood from the womb, and a substanee mistaken for the ovum comes away, so that you are assured by your predeeessor in the case that the uterus must have been thoroughly evaeuated. Notwithstanding this, you learn that the hemorrhagy does not eease, and from this time, it may be for weeks together, the patient is more or less liable to diseharges of blood from the uterus, and by and by there issues from the womb an offensive odour, as if something were deeomposing there. When the uterus is in this way partially emptied, there may be a retention of half the ovum; there may, too, be a retention of a twin — an accident, however, whieh in these cases I never myself witnessed; or, as before observed, there may be a retention of some fleshy mass, of the nature of a mole, lying in the uterus, and keeping up the bleeding; and this I have myself seen. In these perplexing cases, the grand point is to decide whether the womb is empty or not; and to this end, when floodings prove obstinate, you should always bear in mind the recollection, that it is to something retained in the uterine cavity that this obstinaey is most probably to be ascribed; nor should you suffer yourselves to be lightly driven from this opinion by the deelarations of those who have preceded you in the management of the case. A suspieion of this kind prepares the mind for further investigation. In midwifery, as in medieine generally, too mueh faith is a fault. Doubt — investigate — the more the better — truth here has no fears. Suspeeting that the ovum is partially retained by the uterus, if the health be mueh shaken by the eontinuanee of the bleeding, you must of course determine this very important point. Now that the womb is not emptied you may sometimes know by examining the ovum which has been expelled, and finding that it is not complete. If you have been in the habit of examining preparations of this kind, and particularly if you have been in the habit of making them, as reeommended, acquiring an experieneed eye, you may sometimes decide at a glanee whether or not the ovum be complete, and therefore whether, without retention of any part, the whole of it have been expelled from the uterus.

You may further judge whether or not some substance be retained in the uterus, by aseertaining whether, after the reputed evacuation of the contents of the uterus, the patient have still remained obnoxious to floodings, cutting or forcing pains, or those

smells offensive to the sense, resulting from animal decomposition. If there be a pertinacious discharge, and if with this discharge pains or fœtor are concurring, there can scarcely be a doubt that there is something still remaining in the cavity of the uterus. should the urgency of the case demand decision, and the point still remain in doubt — provided your hand be small and your manual skill considerable, you may generally at once determine the question by the introduction of the fingers into the uterus; an operation, however, not without its dangers, to which, therefore, you ought not wantonly to have recourse, and from which, in the commencement of practice, it is better to refrain. In performing this operation, as the vagina is very relaxed, the left hand, if small, may be gently deposited in its cavity, and then the bladder being empty, you may place the right hand over the uterus above and behind the symphysis pubis. This done, the first and second finger of the left hand being passed onward from the vagina up to the very fundus of the uterus, which by the counter pressure of the right hand is cautiously pushed downward and backward upon their tips, the cavity may be examined without any difficulty. Should you find a solid substance in the uterus, you may at the time take it away. Though in the earlier months you may pass your hand into the vagina, you must not even think of passing the entire hand into the *uterine* cavity. I had almost added, that the very thought is enough to bruise and tear the parts. If you are from former experience fit to perform the operation which I have been describing, you will find no difficulty in executing the different parts of it. Unless the safety, or at all events the entire future health of the patient demand the operation, it ought not to be done. It is an evil, justifiable only when a remedy for one still greater. If you want skill, have recourse to some one more dexterous. Dilators of the os uteri, and extractors to remove the ovum have been contrived; they are more likely to do harm than good. Iron has no feeling for you or for the patient.

There is one other variety of flooding in the earlier months, which it may be well to mention here; I mean the flooding which continues after the womb is in reality thoroughly emptied, of which I have seen several instances. In the third month, perhaps, the whole ovum comes away; but instead of shrinking in the ordinary manner, the womb still remains very large — very lax — very vascular; the patient, of consequence, continuing obnoxious to the bleeding. It is by examination only, as before explained, that this case may with certainty be made out, by passing into the uterine cavity two of the fingers of the left hand, and counter-placing on the fundus uteri, above the symphysis pubis, the fingers of the right, the condition of the womb may be clearly ascertained. Remember, however, what was before stated, that to internal examinations of this kind you ought never to have recourse, unless the life or the entire health of the patient require them. Generally in the earlier months women will do very well provided you let them alone.

MANAGEMENT OF THE EARLIER FLOODINGS.

After the general observations already at large premised, the management of the earlier floodings may be compressed into few words. If a woman, in the earlier months, is labouring under a flooding of one or other of the four varieties, no obvious danger attending, the less you actively interfere the better. The patient should be in bed, quiet, and cool; the bowels should be opened, the system, if feverish, should be refrigerated; and cold should be applied topically, and, in larger doses, perhaps, lead should be administered, or the vagina should be obstructed, provided the discharges, copious and pertinacious, seem to require it. But if you find your patient labouring under a discharge more copious and dangerous, and if there is reasonable cause for believing that life, or the tenor of her future life, may be in danger, practices more vigorous than those just enumerated may be required. In these rarer exigencies, besides the remedies ordinary in such bleedings already detailed at large, it behoves you to consider whether you may not have recourse to some of the deobstruents formerly commended, (ergot, for example,) in order to accelerate the expulsion of those substances lodging in the uterine cavity, keeping up the discharge. The ergot I have sometimes tried according to the rules formerly prescribed, and with the greatest advantage. From idiosyncrasy, or other causes, should the ergot remain inert, it would be for consideration, whether you might not manfully interfere, emptying the uterus by that action of the fingers already explained. Such interference, however, be it remembered, is always an evil. Violence will bruise, tear, and kill. To remove the ovum, however, when it lies not in the womb but the vagina, is always both safe and proper, in both varieties of flooding, yet when the bowels are open, often of itself it comes away.

I will not suppose it necessary to remind you, that in the latter floodings, when the woman, without further discharge, lies in a state approaching to asphyxia, to disturb the clots by manual operations may be death. I should despair of teaching you prudence and caution, could I imagine that this principle were effaced from the mind; and yet I have my misgivings. Remember, that even in earlier gestation, if the woman have lost much blood, and if she be in a state of deep fainting, it is unsafe at this time, in any way, to disturb the clots. Let her lie and rally. Assist her by other means than manual operations about the vagina. Transfusion may be necessary. When she is thoroughly established, when the bleeding shows a disposition to return, when, the womb being empty, the drainings of blood still obstinately continue, vaginal operations may be proper enough.

In continued drains from the uterus, when emptied of its contents besides the more obvious and general practices, there are two deserving especial notice — mercurial action, and the injection

of the uterine cavity. Though not besotted with an overwrought opinion of the powers of this valuable mineral, I think some cases have fallen under my notice, in which, whatever its action, the cessation of the drainings might be reasonably attributed to a mercurial action in the system. Do not, however, I entreat you, without reflection salivate your patients. A slight soreness of the mouth is all I would recommend, and this as an ultimate remedy. It would be better for the personal charms, and, I am sure, sometimes better for the health of our patients, if some of our blue pill and calomel were converted into looking-glasses.

The injection of the uterine cavity with astringent fluids, I learned entirely from my valued relative, Dr. Haighton. Its due performance requires an accoucheur; for it is not into the vagina, but the womb, that the fluid should be thrown. Twice, or oftener, in the day, the fluid may be thrown up. Begin with a scruple of alum to a pint of water, increasing the strength according to the effect produced. The blood is sometimes consolidated in the uterus by the action of the alum, and may, to the great alarm of the patient, be expelled with pains like those of parturition; and for this she should be prepared. Though not prepared to assert that this practice is wholly without danger of inflammation, I never, myself, saw any serious ill consequences resulting. Women are now living who have, I think, been preserved by this remedy; but it should not be used without need.

The grand errors which you are likely to commit in managing the earlier floodings are the following. When *tyros*, you are apt to be too soon intimidated by the sight of blood. Perturbations are always undesirable in a practitioner; be it remembered, of the earlier bleedings, that they generally do well; that thought is an excellent anodyne. If rash and resolute, you may fall into a second error, in some measure the result of the preceding; that, I mean, of needlessly thrusting your hand into the vagina, and your fingers into the womb. Remember that you never can enter into the womb without risk; and who will incur that risk unless overborne by a paramount necessity? In floodings of the earlier months such necessity but seldom exists; of consequence, but seldom are your active manual operations required. It may, it is true, be sometimes necessary to use the hand; but a meddlesome midwifery is bad. Beware. Remember the principles formerly prescribed. The use of instruments to dilate the mouth and neck of the uterus; or to take away substances from its cavity, I dislike, in a young accoucheur it is certainly an error. That dilatation of the os uteri can never be proper, I dare not assert. Now and then the finger may be used as a dilator; now and then the forceps may be used to take away the substance contained in the uterine cavity; but these anomalous cases are so rare, that, not to bewilder the mind, it is wiser, perhaps, to consider them as nothing. Beginners, at least, ought not to be perplexed with them; and on the whole, for you, I think, it is better to take the

chance of evil arising from the rejection of these practices, than the chance of the still greater evil which may result from their adoption; for the cases in which these practices may be needlessly and injuriously attempted are innumerable; but those in which the rejection of them may be attended with ill consequences are indeed few. A meddlesome midwifery is bad. To suppose the uterus to be empty when it is not, is another grave error. Recollect the diagnostics stated, and you may generally keep clear of this mistake. Nor is it unnecessary to guard yourselves against an error the converse of the former — that of imagining, because the bleeding is pertinacious, that something must necessarily be retained. In more doubtful cases — time or examination must decide.

LECTURE XX.

MANAGEMENT OF FLOODINGS IN THE LATTER MONTHS.

Those large eruptions of blood which are taking place from the uterus during the latter months of pregnancy, I am accustomed to divide into *three* kinds; those in which the floodings are connected with the situation or implantation of the placenta over the mouth of the womb; those floodings, again, in which you have large quantities of blood coming away from the uterus without the placenta being so situated; and, lastly, those large discharges from the uterine cavities which follow the birth of the fœtus, and either precede, or come after, the abstraction of the placenta. Of these three species of flooding we shall treat in order.

Nature has wisely so ordained it, that, in general, the placenta does not cohere to the mouth and neck of the womb, but is attached either to the body of the uterus or its fundus. It does occasionally happen, and dangerously both to the mother and the fœtus, that the placenta is implanted over the os uteri, so as either to lie over it completely, or else to give it a partial covering, one-half of the os uteri being closed in by the membranes, as the other half is by means of the placenta. When the placenta is, in this way, partially implanted over the os uteri, or covering it completely, we find the patient becomes liable to large and dangerous eruptions of blood from the womb; these eruptions taking place, earlier or later, during the latter periods of gestation, but generally, I think, about the seventh or eighth month, and without any obvious cause. The patient, perhaps, is lying asleep in bed, or, it may be, she is quietly occupied with her needle, when suddenly the blood bursts from the uterus, asphyxia speedily following, and sometimes, though rarely, death itself. Sooner or later, with

more or less severity, the pains make their beginning; and it is remarkable, that when the pains of parturition ultimately supervene, every effort of the uterus is sometimes accompanied with a gush of blood in varying quantity. Of these hemorrhages, the reason usually assigned is the following, — during the first and middle months, it seems the ovum is confined merely to the body of the womb, the neck forming no part of the general receptacle in which it lodges. The placenta, therefore, placed during these months over the neck of the uterus, lies undisturbed; but during the two or three months, in the end of pregnancy, the cervix uteri gradually dilates itself, so as to form a part of the chamber tenanted by the fœtus: and the consequence is, that the neck of the womb dilating to receive the ovum, while the placenta is not equally expanded, a movement of one surface over the other, slow indeed, but certain, is produced. Now, in consequence of this movement of surface upon surface, there is a tearing of those vessels, numerous and large, which pass from the uterus to the placenta; the blood, of consequence, rushing from the uterus largely, and without visible cause, the discharge depending on nothing extrinsic, but upon those internal changes which must necessarily take place. Again: when the efforts of parturition come on, the entire ovum is pushed down towards the vagina, as in ordinary labours — the placenta, which lies over the os uteri, of course descending foremost. With every effort of parturition, therefore, the placenta comes forward more and more, and becoming, of consequence, more and more detached from the uterine surface, additional vessels are successively laid open, each disclosure being accompanied with a further discharge of blood. Thus, in these floodings, we have not only, at first, a spontaneous eruption of the blood, but sometimes also a return of the gushes with the pains, both symptoms very characteristic of the disease.

Such, then, is a brief summary of the more important symptoms which characterise this disease: the placenta covering the mouth of the womb, partially or completely, large hemorrhages, dangerous both to the mother and child, are apt to occur; these floodings often arise spontaneously, and without obvious cause, in the latter months; and when the pains supervene, the ovum begins to descend, and, at this time, the gushes of blood, instead of being diminished, are apt to return with every effort. After all, however, these symptoms merely create a suspicion of the real nature of the case. The only certain mode of ascertaining that the placenta covers the disc of the os uteri, is by examination carefully instituted; and wherever this situation of the placenta is suspected, examination should be had recourse to as soon as it may be made. Performing this operation carefully, we find a fleshy mass lying over the mouth of the womb, covering it completely or partially; and if we are in the habit of feeling the placenta, (and I would recommend you all, in commencing practice, to acquire a knowledge of its tangible properties, by handling

every placenta which may come in your way,) we may readily enough determine on examination, whether that fleshy mass be, or be not, the placenta. If, however, being inexperienced, you suspect that this reputed placenta may, in reality, be nothing more than a clot of blood, taking a small portion of it between your fingers, you had better pluck it away; making an examination of it afterwards by putting it into pure water, when the placentar characteristics may be easily discriminated from those of a clot of blood. In the outset of your practice, take every opportunity of contrasting the one with the other; readiness of discrimination may be of use to you here. To conclude, then; when in the seventh or eighth months, you find a large discharge of blood occurring spontaneously, — and when, after these large discharges, gushes are found to recur with every pain, you may venture to surmise, from these symptoms, that the placenta is lying over the os uteri; that such is certainly its situation can be made out by examination only, and the sooner it is instituted the better.

Asphyxia not forbidding, if you are called to a case in which the placenta is lying over the mouth of the womb, provided the woman be in a state nearly approaching to asphyxia, and provided, as generally happens, the bleeding is arrested, let her lie quiet, forbearing to disturb the genitals by manual operation; for I repeat, if you hastily introduce your hand into the uterus at this time, you perhaps produce a renewal of the discharge, which would most probably destroy the patient.

If you are called to a case in which, the placenta lying over the os uteri, there is not, however, this great reduction of strength, so that the woman does not lie, as it were, half dead, remember the general rule is, that you should introduce your hand into the uterus as soon as you safely may, and that you should abstract the child by the operation of turning. On this point there can be no difference of opinion among competent judges, at least in the present state of knowledge; so that the mind is not here, as sometimes, distracted or disturbed among a variety of practices, all of which may have nearly equal claims to its adoption. Thus, then, lies the general rule: — Provided you find the placenta lying over the disc of the os uteri so as to cover it partially or completely, the hand is to be introduced into the uterus, and the child is to be abstracted by turning, without the delay of a moment, *as soon as the operation may be performed with safety.*

The hand may be safely introduced, or, at least, may be introduced with that degree of safety which justifies the operation, provided the softer parts are thoroughly relaxed, which, in these cases, they almost always are, in consequence of the bleeding; provided the os uteri is beginning to open itself a little; becoming, for instance, broad as half-a-crown, (for the urgency of the danger would justify our not awaiting a wider dilatation,) and provided, lastly, the woman be *not in such a state of asphyxia, that if you disturb the parts, so as to cause the discharge of an additional*

cupful of blood, dissolution may be expected to ensue. Under such conditions, therefore, the sooner you operate the better. But, on the other hand, if the os uteri be closed, if the softer parts be rigid, and if the *patient lie in a state approaching to asphyxia*, WAIT. Wait, in the first place, where the patient is in a state approaching to asphyxia, proceeding to the operation when the patient rallies. Again, where there is a rigidity of the softer parts, — of the os uteri, or vagina, — wait, proceeding to the delivery as soon as the laxity of the parts will allow. In thirty, twenty, nay, sometimes, in ten minutes, or less, a relaxation will sometimes suddenly occur; remain, therefore, with the patient, and let your examinations, though gentle and prudent, be frequent, unless asphyxia forbid. That you ought always to wait, because the disc of the os uteri is smaller than a half-crown piece, I am not sure. When experienced, dexterous, and cautious, you may sometimes dilate and deliver notwithstanding; but keep the fear of laceration always before your eyes, and while young in practice, beware. In the general, I may remark, that you should remain at the bed-side; never quitting the patient till she is delivered; be watchful, too — be vigilant: — by turning, the fœtus is to be abstracted in these cases; and this may be accomplished in different ways. The placenta completely covering the mouth of the uterus, in the first place you may carry your hand through this aperture, at the same time making an opening through the placenta, so as to penetrate both simultaneously, enlarging the opening sufficiently to admit the introduction of the hand into the uterine cavity, where you may lay hold of the child's feet, and bring it away by the operation of turning. Or, again, and this is the second method of operating, passing the os uteri, you may advance the hand between the placenta and uterus, until, with as little disturbance of the parts as may be, you reach the edge of the placenta, where the cyst, containing the liquor amnii (a cyst of water) may be felt. This point accomplished, you enter the cavity of the ovum by lacerating the membranes, advancing afterwards to the feet of the child, and, as before, abstracting it by turning. Like all other things, these two obstetric practices have both their advantages and their evils. If you enter the uterus by rupturing the membranes, I think, on the whole, there may be a fairer chance of preserving the fœtus; I say there may be, for of this I am not certain. But, probably, under this mode of procedure, in consequence of the detachment of the placenta, a large discharge of blood during the operation will occur; while on the other hand, if you dexterously enter through the os uteri, at the same time perforating the substance of the placenta, you may, perhaps, detach the placenta less extensively from the surface of the uterus, and secure the chance of a smaller discharge of blood, though the laceration of the capillaries of the umbilical vessels, occasioned by the disruption of the placenta, may possibly endanger the child. More experience, however, is wanting in these matters; at present

we must, in speaking of them, interject these dubitatives, which form an essential component of most medical opinions. For myself, I make my election between the two modes of performing the operation, upon the following principle: — If, arriving early, I find the patient not much reduced by bleeding, I do not scruple to enter through the membranes, having, I presume, a fairer chance of saving the child in this manner, and, under the conditions given, not being afraid of the loss of an additional cupful of blood; but as frequently happens in placentar cases, the woman is so reduced, that the loss of a few additional ounces of blood may sink her; then I prefer entering the cavity of the uterus by penetrating the placenta, because the bleeding may be less, and the security of the woman may be greater; and, in British midwifery, the safety of the mother, in every point, is made paramount to every other consideration whatever.

Here is, in brief, a statement of those peculiar practices, which these very important and very dangerous flooding cases, of all others the most important and the most dangerous, are requiring. When the placenta is implanted over the os uteri, so as to cover the disc of it partially or completely, the first office of the accoucheur is to ascertain the precise situation of the placenta — certainly known from careful examination only — to be suspected, however, when in the seventh or eighth month, you find large bleedings without obvious cause, while gushes of blood accompany every effort of the uterus. This point ascertained, the practice to be adopted is the following: — If the woman seem to be at the point of death, and the hemorrhage be stopped, you must not disturb the genital parts even by making examination, but, without neglecting other important practices, you must wait till she dies or rallies, operating if she recovers herself, provided the bleeding return and require it. If, on the other hand, the patient be not in this sinking condition, without the needless delay of a minute, you are to deliver as soon as you safely may, and you may with that degree of safety which in such emergency justifies an operation, provided there is not a state of asphyxia immediately approaching, and provided the softer parts are tolerably relaxed, and the os uteri a little open. If there be a rigidity of the softer parts, as sometimes, especially when you are summoned to the case early, by no means leave the patient, even though you may not be able to introduce the hand, but make your examination every five or ten minutes, and introduce your hand as soon as the parts may admit. In performing the operation, if anxious to save every drop of blood, perforate the placenta, afterwards, as you enter the ovum, dilating together the os uteri and the aperture in this viscus; but if the woman be strong, you may then, in general, enter by passing between the womb and ovum to the edge of the placenta, rupturing the membranes, and turning the fœtus as before explained. When the woman cannot be delivered, there may be an advantage in discharging the liquor. This might sometimes be

done by puncturing the placenta, care being taken not to detach it in so doing. When the membranes are felt over the os uteri, the placenta giving it but a partial covering, the waters, under such circumstances, may be easily discharged.

The grand errors you are likely to commit, in cases of this kind, are the following: — You may begin your operations too early, when the softer parts are rigid and, by forcing up the hand, you may, I conceive, bruise and tear and destroy the patient, though, on the whole, it must be admitted that of this there is not much danger, as in placentar cases the parts are generally relaxed. Again, in these cases you may lose the patient by delaying delivery too long, for you may wait till the woman is so much reduced, that she dies either before the operation can be performed, or as soon as the fœtus is taken away. By the expectation of pains you may also be misguided — misled by that *silly* rule which I formerly denounced. The placenta lying over the mouth of the womb, you may have pains, it is true, but the floodings may be so copious that the womb becomes, in a great manner, paralyzed, and while you are waiting for the pains the patient may die. Violence you may commit in performing the operation — atrocious violence — in obstetrics, the sin that cannot be forgiven. If you are too urgent in forcing the hand into the vagina — if you are too rough in dilating the os uteri, — and this is almost the only case in which it is allowable to dilate the os uteri, — the effects are fatal. The dangers of asphyxia I have already pointed out. Sitting down at the bed-side, without reflection, you may proceed headlong to perform the operation, when the patient is so reduced already, that the loss of two or three ounces more of blood will sink her; and what will be the result of this? Before you have got your hand into the uterine cavity, jactitation, heaving, gasping, and intolerable oppression, may seize on the patient, and before you can deliver the woman, she perishes.

FLOODING, IN WHICH THE PLACENTA IS NOT SITUATED OVER THE MOUTH OF THE WOMB.

It frequently happens in the latter months of pregnancy, that you have large eruptions of blood from the uterus, though the placenta be not implanted over the mouth of the uterus; and this absence of the placenta from the mouth of the uterus is to be ascertained, in dubious cases, solely by very careful examination. That flooding is not occasioned by the situation of the placenta over the mouth of the womb, may be reasonably suspected when the bleeding is not spontaneous, but clearly referable to some exciting cause, a fright or a fall, for example, though these eruptions may sometimes occur without being preceded by any obvious accident to which they may be attributed. That the flooding is independent of the situation of the placenta over the os uteri may, too, be shown in some cases by the freedom of the patient from

those large gushes of blood during the pains, so frequently occurring when the placenta is implanted over the mouth of the womb. These diagnostics, however, are presumptive merely; understand, clearly, that the only certain mode of deciding whether the placenta is or not lying over the mouth of the os uteri, is by careful examination.

Under various forms it is, that these floodings manifest themselves, when the placenta is not deposited upon the mouth of the womb. In the seventh or eighth month, for example, the patient may die suddenly, with symptoms very similar to those of ruptured aneurism; and on laying open the body after death, two or three pints of blood may be discovered within the cavity of the uterus, and this, too, although there have been no external bleeding. On this variety of flooding I forbear to dwell; it is of rare occurrence, and, in the present condition of knowledge, scarcely admits a remedy.

In the latter months, when the placenta is not lying over the mouth of the womb, floodings of a different kind, more frequent though not common, are found to occur. Perhaps the woman is in strong labour, the liquor amnii discharged, the head of the child descended into the cavity of the pelvis, and a sudden eruption of blood takes place in the middle of the labour. In cases of this kind, if the discharge be not very abundant, and the head of the fœtus not advancing with unusual tardiness, the less you interfere the better. Puzos, a practitioner of Paris, used to recommend the urging forward of the pains by making pressure on the os uteri, perineum, and back of the vagina, which, as he imagined, had the effect of stimulating the uterus and of multiplying the efforts. Of this practice I have had but small experience; contusions would be the result of a rough administration of it. If it really possess the power imputed, and effectively accelerate the birth of the fœtus, it would, with due gentleness and caution, be well worth a trial in the more copious floodings of this kind; but after all, I incline to think that other practices may be more advantageously adopted, with a view of stimulating the efforts of the uterus; and of these it is my design to treat at large hereafter, when on the subject of lingering labour. The ergot appears to be especially indicated. If, again, in the middle of the labour the bleeding takes place, and that, too, in quantity which is dangerous; should the head be above the brim, you must introduce the hand, and bring the fœtus away by the operation of turning; but should the head be below the brim of the pelvis, you may introduce a lever or a pair of forceps, abstracting the fœtus in that manner. The practice here is very simple; so long as the discharge is not dangerous, it is unnecessary to interfere actively with your manual practice; but if the discharge is so abundant that life seems to be thereby endangered — unless, as before explained, asphyxia forbid—manual operations become necessary: if the head of the child be below the brim, the lever or forceps may be used;

if above the brim of the pelvis, the hand must be introduced into the uterus, and the child must be abstracted by the operation of turning, the evacuation of the uterus in these cases being the only effectual mode of putting a stop to the discharge.

To proceed to the next variety: if engaged in consultation practice, not uncommonly you will meet with flooding cases where the placenta is not placed over the mouth of the womb, and where labour perhaps is not as yet begun, the patient being attacked with copious bleeding, at a time when the membranes are unbroken, and when the os uteri is wholly or in great measure closed. Now, in cases of this kind, if the discharge be unattended with danger, you need not actively or manually interfere. Let the patient lie in bed — let her be kept cool and quiet; if there be a slight fainting let it be encouraged: and refrigerants may be of use; and turpentine and lead may be given; and cold applied topically; in a word, to check the bleeding you may have recourse to all the various practices already recommended. If, however, as not unfrequently happens in those bleedings, you are alarmed for the safety of the patient, you may then be justified in having recourse to manual practices; and if, then, the placenta be not upon the mouth of the uterus, and the liquor amnii have not as yet been discharged, then it seems to be agreed that preference is to be given to that beautiful operation, which consists merely in the rupturing of the membranes and the discharge of the liquor amnii. For this purpose, the hemorrhage continuing, pass a finger or two to the membranes, then take a female sound, (if bluntly pointed all the better,) and carrying this through the membranes, tear them a little, so as to discharge the water. Rigby tells us, I think, that in as many as sixty cases he found this operation sufficient to arrest the discharge, or, at all events, to diminish it so much as to secure the patient from danger. Merriman, in his very excellent Synopsis of Midwifery, states, that in nearly thirty cases of uterine bleeding in the after months, he found this operation alone sufficient effectually to check the discharge. Now, the danger of the cases considered, this success is splendid; nor have I in my own practice found reason to doubt the efficacy of the remedy. Your practice, therefore, lies here within a very narrow compass, easily administered, efficaciously operative. The placenta not lying over the mouth of the womb, and the os uteri being shut, provided the discharge be not very large and dangerous, you do not interfere with the membranes, but wait, at least for a time, to see whether the bleeding will not cease of itself; but if the discharge continue, so that you are alarmed for the safety of your patient, even then you ought not, without reflection, to thrust your hand into the uterus; for in general it is sufficient merely to rupture the membranes; an operation than which none in midwifery is more easy, and in this way discharging the fluid of the ovum, you more or less completely arrest the discharge. The operation is beautiful — simple, as it is effectual.

The placenta not lying over the os uteri, it now and then happens that, notwithstanding the discharge of the liquor amnii, the flooding still continues. In cases of this kind, provided the patient's life appear to be in danger, the only remaining resource is to bring away the child by the operation of turning; for of the remaining means for arresting the bleeding, the most powerful is the thorough evacuation of the uterus. If the softer parts are rigid, the os uteri shut and unyielding, and the patient in a state approaching to asphyxia, so that it is necessary to wait till she rally, you must refrain from interfering; remain in the house — abide in the bed-chamber; be patient — be vigilant; and when your patient has rallied somewhat make an examination, to know whether the hand can yet be introduced with safety; if from the laxity of the softer parts, and the dilatation of the uterine mouth, it seem evident that turning may be safely executed, let the hand without delay be carried into the cavity of the uterus, for the sooner the fœtus is abstracted the better.

The following are the principal errors which you are apt to commit in the management of those floodings in which the placenta is not lying over the mouth of the uterus, and they well deserve a little consideration. The neglecting to ascertain whether the placenta is, or not, lying over the mouth of the womb, is a capital fault, for your whole practice must turn upon that knowledge; if the placenta is lying over the mouth of the womb, one kind of practice becomes proper; if it is not so situated, another. The trusting too much to medicinal treatment, to the exclusion of manual interference, is another great error in the management of the latter floodings. In general, as I have observed on preceding occasions, the best accoucheurs are those who interfere least with the fingers or hand; but if there be an exception to that rule, that exception lies in the management of these flooding cases of the latter months, where, owing to the danger arising from the large discharges of blood, practices prompt and efficacious are peremptorily required. Denman, a cautious and experienced practitioner, remarks, that if we are to err in those cases, we ought rather to err on the side of promptitude than procrastination; adding, that it is rather a sign of wisdom than of officiousness to show a readiness in these cases to discharge the liquor amnii, or to deliver by the hand. If you have not seen much of flooding cases, you are liable to be alarmed at the quantity of blood that is discharged; being induced, of consequence, to carry your hand into the uterus, when perhaps it would have been a better practice to have confided the suppression of the bleeding to the rupture of the membranes, an operation at once safer and more easy. Further, the delivery of patients in a hurry is a great error; it is more than an error, it is a crime. Into this crime in an unguarded hour you may be seduced, if you have delayed too long the delivery when really required; anxious to save your reputation and your patient, you accelerate, you bruise, you tear, you destroy. I now repeat

what I observed once before: in obstetrics, a thrust of the hand into the uterus may prove as fatal, and will generally produce a more extensive wound, than the thrust of a bayonet. The waiting for pains is an error, which you may commit — you have not forgotten the silly rule; where there are large floodings the womb may be paralysed; nor should you, therefore, if symptoms require it, be deterred from manual interference, merely because the pains are wanting. The absence of pains, if it prove anything, rather proves the necessity of obstetric assistance, because it proves that the natural efforts are inadequate to the expulsion of the fœtus.

LECTURE XXI.

AFTER-FLOODING.

By after-floodings, you are to understand those discharges of blood which takes place subsequently to the expulsion of the child, before or after the birth of the placenta. As these floodings differ with respect to their circumstances, I propose to consider their several varieties.

After the birth of the child, we sometimes meet with large discharges of blood from the uterus; and these discharges may either be produced by the presence of a portion of the placenta, which has been left behind in the womb unperceived by the accoucheur, or, without such retention of the placenta, they may now and then be occasioned by the lodgment of a clot of blood. That a part of the placenta is retained, we may suspect, if pains like those of labour occur — if, too, the discharges from the womb are fœtid, and if the bleeding have stopped and made its appearance again, perhaps three or four days after delivery; and this suspicion once excited, provided circumstances require, an examination may be made, when, if there be anything in the uterus, it will most probably be found lying in the mouth of the womb. The treatment of these cases may be dismissed in a few words. So long as the symptoms are not pressing and dangerous, so long it is not necessary that the practitioner should manually interfere. The various remedies prescribed on a former occasion may be tried; and, among others, the ergot; you may throw saline injections, or cold water, into the rectum, or other means may be used to urge the contraction of the womb. But should the bleeding become obstinate, so as to place the life of the patient in danger, you would be justified in throwing astringent fluids into the uterus, a drachm of alum, for example, dissolved for that purpose in a quart of water; or, if there be any substance in the uterine cavity, you may find it necessary to put your hand into the vagina, your

fingers into the uterus, so as to bring away that substance, by the removal of which, in many instances, the hemorrhage would become promptly arrested. In women of a peculiar constitution you sometimes meet with an after-flooding of a very different kind, described by my valued predecessor, Dr. Haighton, but which I have never hitherto seen myself; whence I presume that it is not of common occurrence. In these cases, a sudden pain is felt in the region of the uterus, with concurrent vomiting and flooding; soon it ceases, then recurs, and this, too, repeatedly, till the woman, at length, loses so much blood that her life is endangered, or perhaps she perishes. These bleedings do not, in general, assail the patient immediately after the birth of the child, but occur an hour or two after the expulsion both of the fœtus and its placenta. It appears, too, that there is a tendency to a repetition of these floodings in subsequent labours; so that if a woman have had an attack of this kind after one delivery, in her future labours she ought to be watched for an hour or two with more than ordinary care.

A more common, more important, and perhaps a more fatal variety of these eruptions, is of a third kind, distinguished by a title familiar to most obstetric ears; I mean that of *internal* bleeding. In these hemorrhages a clot of blood forms over the neck of the womb, and the hemorrhage proceeding, the blood accumulates unobserved in the cavity of the uterus. A pint or two may, in this manner, accumulate in the cavity of the uterus. Occasionally we meet with a variety of after-flooding, though different in pathology, yet analogous in practice; I mean concealed hemorrhage in the bed. A woman lying in the centre of a large bed, two or three pints of blood accumulate about her, forming a sort of pool there; the patient, perhaps, being so enfeebled, that she does not direct your attention to it, and seems, sometimes, to overlook it herself. In either case dissolution has been the consequence repeatedly. The accoucheur is, perhaps, in a room adjoining that of the patient; he is suddenly summoned to her apartment, and, reaching the bed-side, he finds her dying, or dead; for on such occasions women are sometimes very suddenly hurried from us.

When blood accumulates in the bed, it is readily detected by raising the coverings. If the blood collect in the cavity of the uterus, this also may be easily ascertained by examination. Laying the hand upon the uterus externally above the symphysis pubis, instead of finding the womb round, hard, and not bigger than the head of the fœtus, you feel it, perhaps, large as the adult head, yielding under pressure, and, not without gurgling, it discharges large quantities of blood, fluid or coagulated.

Of all the after-floodings, however, by far the most common is the *external* bleeding. Sometimes preceding, sometimes following, sometimes accompanying the abstraction of the placenta, large quantities of blood may be discharged. If the woman lie near

the edge of the bed you hear or see the blood as it pours upon the floor. This gushing is followed by asphyxia, or a state approaching it; and from that time onward, frequently there is no further gush, but merely a draining — a few ounces of blood coming slowly away. In these cases, if the woman have not lost much blood, she rallies in the course of four or five hours, sometimes very rapidly. Sitting at the bed-side, doubtful whether the patient will recover or not, you find her rising and sinking, to rise and sink again repeatedly, still, upon the whole, gaining ground on her complaint; so that, at the end of four or six hours, you have the satisfaction to pronounce her to be, in great measure, secure from danger. But if the constitution be of that kind which ill sustains the loss of blood, or if the discharge be very great, then the woman may die; and she may either die suddenly, — in a few minutes, or, which is more frequent, she may live for one, two, or three hours after the first large eruption of blood, so that you have an opportunity of performing the operation of transfusion.

These hemorrhages usually supervene within about twenty or thirty minutes after the delivery of the child; so that, as some one has remarked judiciously enough, they occur not unfrequently just about the time when the accoucheur is on the eve of quitting the apartment of the patient, and thinks that his duties are completed.

TREATMENT OF AFTER-FLOODING.

With a view to their management, various as these floodings are, they may be commodiously divided into two kinds; those in which the discharge is sparing, and those in which the eruption of blood is at once abundant and dangerous.

If called to a case in which, after the birth of the child, much blood has been discharged from the uterus — should asphyxia threaten, and should the bleeding be arrested — in conformity with principles already frequently enforced, beware of manual interference. I have observed already more than once, and, in consequence of its importance, I reiterate the remark, that whenever women are reduced to the lowest ebb, in consequence of large losses of blood, to disturb the genitals, unless with the utmost caution, is always more or less dangerous; for, in consequence of this disturbance the bleeding may be renewed, and asphyxia and death may ensue. If, however, the system have recovered some share of vigour, and the flooding show a disposition to return; or if, as not unfrequently happens, you are called to floodings in which, though the discharge have been copious, still on examining the patient you feel satisfied nevertheless that there is no immediate danger, manual assistance then becomes proper: and one of the first measures to be taken is, that of endeavouring to secure the contraction of the uterus. When explaining the

nature of floodings, I observed that the principal means which nature employs to arrest the discharge of blood from the uterus is, the contraction of those muscular fibres which enter so largely into its composition. The womb contracted, its muscular fibres are shortened ; they press upon all the bloodvessels which are disposed and buried among them, and under this contraction they close up the vascular orifices which open upon the uterine surface, much in the same manner as if they were tied by so many ligatures. Hence, in after-floodings, though not negligent of other practices, we ought to give our main attention to the contraction of the womb, the best security against a further discharge. To excite uterine contractions, by some we are advised to carry the hand into the cavity of the uterus, moving it about there ; an operation which, I believe, requires to be performed but rarely ; an operation, also, to which I am exceedingly averse, being always unwilling to carry the hand into the uterus unless there be an inexorable need, for lacerations now and then occur. There are others, again, who think they can secure the contraction by binding the abdomen, a practice by no means to be despised. They put a bandage round the abdomen, interposing a pillow between the abdomen and the bandage ; then, drawing the bandage tight so as to occasion pressure on the abdomen in front, they endeavour in that manner to prevent the enlargement of the womb, and, in so doing, they at least prevent an accumulation of blood there. In the very beginning of the labour this bandage may be applied, and if this precaution have been taken it will be easy, without disturbance, to draw it tighter after the birth of the fœtus ; and this practice is not to be neglected. To mere bandaging, however, you need not confide. On tightening the bandage, be not forgetful, too, to interpose the hand, and, grasping the uterus (to be felt through the abdominal coverings), compress, shampoo it lightly, and roll the hand over its surface, careful in so doing not to occasion much pain. Distinguishing the womb in this manner through the coverings of the abdomen, grasping it, shampooing it, and rolling the hand over its surface, you may in general stimulate its contractions as effectually, and much more safely, than if you were to introduce your hand into its cavity.

It may not be amiss to remark here, that in flooding cases, and indeed after all deliveries, there are different states in which the womb may be felt, which I formerly described to you. On laying the hand upon the abdominal coverings, endeavouring to feel and grasp the uterus, you will sometimes find it nearly as large as the adult head ; a proof that it is uncontracted, and a presumption that blood may be accumulated in its cavity. In other and more frequent cases, on grasping the womb, you find it small, not much larger than the head of a fœtus ; but, though contracted, it feels soft and pulpy, yielding readily to pressure. In other cases, especially where the hemorrhage has been arrested, the womb, thoroughly contracted, feels at the same time round, firm, and

hard as the fœtal head, and this, too, permanently; under which condition of the uterus the patient in general is thenceforward secure against any dangerous eruption of blood. There is a fourth, a sort of intermediate condition, in which you may sometimes observe the womb; at one moment it feels contracted and hard, at another very soft and yielding, and perhaps enlarged, the contraction of the womb being not permanent but only temporary, the muscular actions occurring, perhaps, more especially when cold is applied, or when the hand is rolled over the uterine surface. Of all these conditions, the two latter only secure the patient against further bleedings, and more especially that condition in which the uterine contraction is permanent. If you find the womb thoroughly contracted, round and hard, then, provided it permanently remain so, flooding will rarely if ever ensue; if, moreover, you find it round and hard, yet occasionally softening, in general your patient is secure, though not so certainly as when the uterus is in the other condition. If the womb be contracted, but permanently soft and pulpy, or if you find it uncontracted altogether under these circumstances, there is great danger lest the flooding should be renewed, and of course the patient remains insecure.

The management of the placenta is of the first importance in after-floodings, and the following rules relating to this point are not without their use: — In after-floodings, if the placenta *have been removed*, you ought by all means to ascertain whether the whole have been taken away; and, further, whether, in this abstraction of the placenta, the womb have not been inverted. It sometimes happens in the hurry and tumult of a flooding, that, in drawing down the placenta, the practitioner draws down the womb too, inverting it the more readily because it is relaxed and paralysed by the eruption of the blood. Should you draw forth the uterus beyond the external parts, so that it lies between the limbs, the inversion can scarcely be overlooked; but if, in consequence of the inversion, the womb have been drawn down into the vagina merely, the inversion may then remain unnoticed; and, in this way, bleedings may be sustained, the cause being unknown: a case of this kind has been recorded by Denman.

In the hurry and tumult of a flooding, when abstracting the placenta, you may bring away part only, leaving unawares in the uterus one-half, one-third, or a still smaller portion; of which accident I have myself seen several instances. Now, retentions of this kind give rise sometimes to floodings, and this too not only when the larger portions are retained, but the smaller also; and I suspect, that much inconvenience may be now and then occasioned by portions of the placenta not larger than the hand of a new-born infant; so that in those floodings which occur after the placenta has been removed, it becomes of no small importance to ascertain, whether or not the whole have been abstracted.

That no portion of the placenta is left behind, you may ascer-

tain, by taking the placenta which has been removed, laying it out upon a napkin, and carefully ascertaining whether its structure be entire. Doing this, if one part of the placenta is absent, you easily discover it; and if the whole be there, you see it at once. When inversion of the uterus is suspected, the best mode of ascertaining this is, by laying the hand above the symphysis pubis, when, if you can feel and grasp the uterus in its natural situation, it follows that no inversion has taken place; but should you not discover the uterus above the pubes, or, on examining the vagina, should you find the womb lying within, and forming a tumour, soft, round, and large as the fœtal head; or should you find the uterus, as before observed, lying forth between the limbs, the inversion becomes evident enough. Polypus, or efflorescent excrescence, must not be confounded with inversion of the uterus; the sudden appearance, however, of these, after delivery, is rare. When inversion is detected, the sooner the womb is reduced the better.

In after-floodings we are sometimes called to cases, in which the bleeding has occurred after the birth of the fœtus, *the placenta still remaining* in the cavity of the uterus. Now, in these cases, if the woman be lying in a state approaching to asphyxia, the flooding being arrested, it is unwise to interfere manually; but if the case is of the ordinary kind, and though the flooding be copious, the symptoms are not very pressing, the received practice seems to be a good one, and the sooner you remove the placenta, the sooner the womb will contract, and the sooner the hemorrhage may be expected to cease. With respect to the management of the placenta our practice may be comprised in few words. In general, where there is flooding after delivery, we remove the placenta as soon as may be; leaving it undisturbed, where we apprehend that the woman might faint, and die under renewal of the bleeding. But if the placenta have been abstracted already, before the case comes under our care, then we are anxious to satisfy ourselves that inversion of the womb has not taken place, and that no portion of the placenta has been separated by laceration.

Under large eruptions of blood from the uterus, the woman lying in a state approaching to asphyxia, cold in all her members, refrigerating applications to the central parts are scarcely requisite; though, in conformity with popular feeling, and the prepossessions of friends, napkins moistened with vinegar and water, or water simply, may be administered in a manner formerly recommended. But if, under a continuance of the after-floodings, the surface is warm, the pulse distinct, and the vascular action lively — a condition of the patient by no means common in these cases — then the ordinary refrigerating applications become proper enough, and ought to be used with diligence. For this purpose, procure a large body of very cold water, adding to it a pint or two of vinegar, then, folding a napkin, so as to form a surface large enough to

cover the central parts in front, or posteriorly, either sprinkle it plentifully with the fluid, or drench it, afterwards wringing it partially dry. The napkin thus prepared, lay it on the lower part of the abdomen: and, having done this, apply another napkin in the same manner to the loins, changing those napkins as often as the surface acquires warmth, every two or three minutes for example, or oftener. In very warm weather, and in warm climates, even ice, when accessible, has been recommended, but of this I have no experience. Cold water may be injected into the rectum, and I know not that any ill effects would result from this practice, well calculated to excite contraction of the uterus. I have seen some of my obstetric friends dash a cupful of water over the abdomen; while others have taken the hearth brush, always at hand, and dipping it into the refrigerating mixture, they have showered the water upon the abdominal surface, by means of this homely instrument. Bladders of cold water are sometimes placed under the axilla. Ice has been introduced into the vagina, not, however, without the risk of freezing and mortification; and, certainly, by these or other means, a strong impression may be made upon the system, and so far, therefore, they properly recommend themselves to our attention; but, for general use, the most convenient method of refrigeration is by means of the napkin, as before stated; and, if you wish to produce a sudden and brisk impression on the body, after refrigerating the napkins, you may throw them promptly upon the parts in front or posteriorly. That the application of cold assists in suppressing the hemorrhagy, seems, to be proved by experience; and, without refining in our speculations, the fact alone is sufficient to evince the fitness of the practice under the conditions before laid down. Should you ask me to explain the manner in which the application of cold proves effectual in suppressing the bleeding, I should reply, that it operates most probably in two modes; first, by lowering the action of the vascular system, as we all know that cold will do; secondly, by producing a sudden impression on the skin, which seems, by sympathy, to occasion a contraction of the uterus; for, I think, I have myself observed, when a wet handkerchief has been suddenly applied to the lower parts of the abdomen, that, immediately afterwards, on placing the hand beneath the handkerchief, the womb, soft before, might be felt round and firm and hard, as if a prompt contraction had been produced by the sudden refrigeration.

In large bleedings after the birth of the child, you will find your patient generally more or less prone to faintness and asphyxia, and as the management of these symptoms will occasion you no small share of solicitude, you had better study them before you are called upon to act. In these cases, unless immediate death threaten, you need not be in great haste to resusticate the patient; for all are aware, that when vascular action is depressed, the blood has a greater tendency to coagulate and close up the bleeding

orifices; that under this lowered action, there will be a smaller chance of the detachment of the obstructive clots; that a small quantity of blood flowing through the uterus in a given time, even though the orifices of the vessels remain open, only a small discharge may take place; and, on all these accounts, therefore, that syncope, wisely intended by nature to put a stop to the bleeding, ought not to be interrupted. In the very first case of this kind which may fall under your care, alarmed by the collapse, you will feel a disposition to stimulate your patient, but against this error I forewarn you; as long as the faintness is not dangerous, so long let it continue; and, in general, in these cases, the syncope is rather alarming than dangerous. On the other hand, if the collapse produced by the inanition is extreme, and there is danger lest the syncope, characterized by symptoms formerly enumerated, should terminate in asphyxia, it then becomes necessary by stimulus, or other means, to sustain the vascular action. For this purpose, as I have told you already, the domestic stimulus is perhaps the best; and spirit (rum, brandy, or geneva,) may be given in quantities of two or three table-spoonfuls at once, pure, or with an equal quantity of water every ten or twenty minutes, according to the effect it may produce. That the spirit is in action we know, if the patient become garrulous and intoxicated; that it excites the vascular system we know, if the pulse rises; and, in all cases, if you find the spirit in operation, so that the asphyxia gradually yields, the further administration of it may be suspended. It is according to the effect produced that this stimulus must be given. If you give merely a few table-spoonfuls, in this condition of the system, you will find that it produces but little effect; the stomach is half dead, and moderate doses of stimulus are of little avail. I have found it necessary to give half a pint of spirit, and even more; and this, too, to young girls, in the course of two or three hours, the tendency to asphyxia being very strong. While administering this, you will put your patient in a position fitted, as far as may be, to prevent the asphyxia, with the head depressed, and the limbs raised by means of pillows. The patient, however, must on no account be stirred much to obtain this position; but if, by chance, she is lying near to the side of the bed, let the head fall down over the edge, and gently raise the lower limbs, so as to keep the blood as much as may be about the brain; for, while the blood circulates there, asphyxia, I conceive, cannot occur. Nor, while treating of the means for preventing asphyxia, must I forget to mention, that nourishment should be given, though there is little hope of its being well digested. Beef tea, bread, milk, and preparations of egg, to the amount of half a pint, may be administered; and of these, eggs and bread and milk have the advantage of being very readily prepared. If the patient is obviously sinking, I have told you already that the principal remaining remedy is *transfusion*.

That plugging the vagina is always improper in after-floodings

I am not prepared to assert; in obstinate drainings it may be of service. Be careful that no internal bleeding occur under the use of this remedy; and this will be best prevented by grasping the womb with the hand.

Such are the leading practices to be recommended in those alarming collapses, which are the consequences of after-floodings. If the faintness be slight, you need not actively interfere; but, if the faintness be very deep, and approaching to asphyxia, then stimulate; place the woman in such a position as may keep the blood about the head; administer nourishment, and, no other hope remaining, provided you possess the requisite dexterity, perform the operation of transfusion.

While you are pursuing these practices, of course you will be most anxious to know whether you are gaining ground, and whether or not the hemorrhage be suspended. In after-floodings, after the first gush, there is not usually a copious discharge of blood, but a small drain from the vascular orifices is apt to continue. It is of no small importance to know, whether this flux from the womb be arrested or not; and this may be best ascertained by clearing the genitals, and applying a clean napkin below the part on which the patient lies, and against the orifice of the vagina. If you find, after an application of two or three minutes, that the napkin is not stained at all, or that the stain is small and pale, then, provided you have felt and grasped the uterus, so as to expel any blood that may have accumulated there, you may rest satisfied that the bleeding is wholly or in great measure arrested. A converse inference of course you will draw, provided the bloody stain be extensive and deep.

When flooding is arrested, bind up the abdomen very firmly, with as little disturbance as may be. Gaitskell's bandage may be of service; between the abdomen and the bandage a pillow may sometimes be interposed with advantage. In cases of large bleeding after delivery, you will be led to consider whether you may or not quit the apartment of the patient after you have put a stop to the discharge; and on this point, therefore, some comment becomes necessary. Most women do well under after-floodings. These bleedings are generally more alarming than dangerous: remember this, for it tends to tranquillise, and may allay needless perturbations. No woman is thoroughly secure after a large and dangerous flooding, till she have survived the first gush for four or five hours, though the continuance of life after the gush, for two or three hours, must be looked upon as in a high degree encouraging. In small bleedings much precaution is not necessary; but when much blood has been lost, it is requisite that some one should remain with the patient for three or four hours at least after the flooding is arrested.

After large floodings you ought not to move the patient; let her remain in a perfectly quiet condition for twelve or twenty-four hours, being secured as much as possible from moisture, or what-

ever else might tend to her discomfort. I state again, that by yielding to the entreaties of friends, and suffering a removal of patients from one side of the bed to the other, I myself in two cases occasioned such a disturbance of the vascular system, that I really thought they would have expired. One case I know in which the woman did die; the practitioner left her an hour or two afterwards, the nurse suffered her to sit up; bleeding was renewed, jactitation came on, and the woman ultimately perished.

After delivery, it is by no means uncommon to have more *sparing* bleedings; floodings in which not more than half a pint or a pint of blood is discharged. In bleedings of this kind, the active practices just enumerated and explained are not required, a much simpler method of management being found to answer very well, and which may be comprised in few words. In after-floodings of the more sparing kind you may draw the curtains, sprinkle the floor, diminish the fire, tell the patient to restrain her tongue, often very garrulous after delivery; take away the placenta with usual caution; lay the hand on the uterus and grasp it; apply a little cold water; have a little patience, and the hemorrhage is over. Do not let me alarm you needlessly. Do not needlessly have recourse to vehement practices. Remember that, in recommending these, I have been treating of those after-hemorrhages in which profuse quantities of blood are coming away from the uterus. Most after-hemorrhages are more alarming than fatal; — they are not, however, to be despised.

There are some *errors* which you are apt to commit in dealing with these floodings, and on these we will next remark. In the hurry of extracting the placenta, you may invert the uterus without perceiving it; you may, too, carry your hand into the uterus without need, a practice to which I am decidedly averse. When the blood gushes away externally, you cannot fail to observe the flooding; but when there is a discharge of blood internally, or into the middle of a large bed, you may overlook it. Watch, therefore, and beware. It is of great importance to keep the womb thoroughly contracted, by laying your hand upon the womb and grasping. A capital error, therefore, may be committed — that, I mean, of not securing the contraction of the uterus. Examine yourselves on the very first case which may fall under your care, and see whether you have not neglected the state of the uterus altogether. Leaving the patient too soon is a great error; five or six hours you should remain with her after a dangerous discharge of blood has been stopped. This is not necessary in ordinary cases, where merely a few ounces of blood have come away, but after the more copious bleedings it is a very necessary caution.

Some women there are, from idiosyncrasy, peculiarly liable to bleeding, and very undesirable patients they are; the probability being that they will ultimately die under your hands. Hence it becomes a question in cases of after-floodings, whether we can use

any means of prevention. Now as I am in general called to cases in which the flooding is commenced before my arrival, I have had little opportunity of seeing the effect of any preventive practice, and cannot, therefore, from my own experience enlarge upon this topic. When there is a tendency to bleeding, Denman and others have recommended that you should not accelerate the birth of the child. After the head has been expelled, you ought not to draw forth the shoulders and abdomen. The womb by its own efforts expelling the fœtus, it will contract more completely, and less bleeding therefore is to be looked for when the placenta becomes detached. When the child is about to come into the world, or when it is just born, a gentle stimulus may be given, and notwithstanding any little increase of the vascular action which it may occasion, the stimulus seems to be of service, by assisting that uterine contraction on which the prevention of the bleeding is mainly dependent. When there is proneness to flooding, we are advised by Denman to maintain the patient in the sedentary posture, when the fœtus is about to pass into the world; as it is supposed that in that position there is a less tendency to bleeding than where the patient is lying at this time in the usual manner. The leaving the placenta in the upper part of the vagina is another preventive recommended by some practitioners. It is supposed that the lodgment of the placenta in the neck of the uterus, or the upper part of the vagina, will stimulate a more thorough condition of the womb, and by so doing operate as an effectual preventive of flooding. Pursuing the rules formerly recommended in managing the birth of the placenta, you will find yourselves in conformity with this practice; for it has been observed already, that in commencing your obstetric career, in ordinary cases, before you abstract the placenta, you ought to be content to leave it in the genital cavity for fifty or sixty minutes after the expulsion of the fœtus.

LECTURE XXII.

LABORIOUS LABOURS.

Although in all cases the use of instruments contrived for the extraction of the fœtus is to be looked on as a great evil, yet in labours of difficulty or danger it sometimes happens, that the use of these instruments occasions a smaller evil than that which would arise from the commission of the labour to the unassisted efforts of nature. In these cases only the employment of instruments becomes justifiable; and to the consideration of these cases, laborious labours, as they are denominated, we will proceed;

commencing with the consideration of the more important accidents to which, in this variety of it, delivery becomes obnoxious, whether during parturition or afterwards. First, let us give our attention to those accidents which occur more especially during the delivery.

A disruption of the larger air tubes seldom occurs in the progress of laborious parturition; yet this accident is sometimes observed, the trachea or bronchi giving way. After much exertion the neck and face swell: from the hurrying of the circulation an erythematous flush of the integuments is produced, and at first glance the patient appears to labour under a sudden attack of erysipelas; the flatulent nature of the swelling manifesting itself on making an examination, by the usual crepitus perceived on compressing, and lightly shampooing the skin with the tips of the fingers. Should emphysema occur, delivery is desirable. To retain the breath and force down is likely to aggravate the disease, so that the emission of the voice may be recommended. After delivery, if I may judge from the single case brought under my notice, the aperture, seldom perhaps capacious, heals spontaneously, and without inflammation the air is absorbed. The patient under my care, a stout Irishwoman, disposed to clamour and to make violent efforts, was in a former labour attacked with the laceration, recovering on both occasions without a single bad symptom. The second time she was delivered by the long forceps.

In labours protracted and violent, the vascular system may give way; nor is the patient always of plethoric habit. Sometimes the smaller parts of this system, sometimes the more capacious are burst, and blood may become extravasated into any of the three great cavities — the head, chest, or abdomen. After a most laborious labour, a young lady suffered a very severe pain, the fœtus suddenly burst into the world; but at the same moment blood began to gush from the lungs, and speedily the patient was suffocated. A woman, of a system by no means plethoric, after uterine hemorrhage, neither very violent nor very long-continued, suddenly fell back upon the bed and expired. On inspection afterwards, the mouth of the womb was found to be dilated to the breadth of a dollar, the shoulders presenting; the right ventricle of the heart was laid open to the extent of one or two inches, as if it had been wounded by the knife, and the pericardium contained an ounce or two of blood. When the heart bursts, a very small bleeding seems to accompany the cessation of its action.

Though not a certain preventive of vascular or cardiac laceration, the abstraction of blood from the arm seems to be the remedy more especially deserving trial. It is not always with repletion, nor under the more violent efforts of the uterus, that these disruptions occur; nor is there in general a previous warning; they are, however, to be apprehended more especially if the system be full of blood, and the uterine efforts violent. Delivery seems clearly indicated, when these ruptures are reasonably appre-

hended; and though the abstraction of blood from the arm is by no means a certain security against laceration of the heart or vessels; yet, in prudence, this remedy ought to be tried. Voluntary urging in these cases is undesirable; the calmer the patient is, the better.

In the commotion of labour, sometimes the genitals give way in the upper part of the pelvis, the body of the womb yielding occasionally, and still more frequently the neck or vagina. Longitudinal lacerations are not common; in general the rending is transverse, and lies opposite the promontory of the sacrum or the symphysis pubis, the regions most obnoxious to laceration. Frequently the rent is carried completely through the peritoneum, so that the hand might be carried up among the intestines; occasionally the rent penetrates to the peritoneum, without passing through it, the inner textures, vaginal or uterine, alone giving way; nor am I fully convinced that these lacerations, when seated in the upper part, are much less dangerous than the preceding. The fœtus may be expelled by the same effort which lacerates the uterus, as in one case which fell under my own notice; or the genitals yielding, the head may remain impacted in the pelvis; the body alone of the child lying forth through the opening into the peritoneal sac; or lastly, and most frequently, the womb or vagina yielding, the whole fœtus with its secundines may pass through the laceration, so as to lodge among the intestines.

Variously, and not always with just blame of the obstetric attendants, these lacerations of the genitals may be produced; sometimes by rude attempts to introduce the hand, sometimes by the ill-directed introduction of the forceps or the lever, sometimes by the rash and rapid abstraction of the head, and sometimes by the long-continued and violent, but unavailing efforts of the womb to expel the fœtus, the uterus tearing under its own exertions. The symptoms and treatment of lacerations after they have occurred, we will consider hereafter, confining our observations, at present, to the prevention of this tremendous accident. Lacerations may be sudden, no premonitory symptom preceding, so that we have not always an opportunity of taking precautionary measures; yet, now and then, the accident is foreshown, more or less distinctly, by the violence of the uterine efforts; and, above all, by unusual, and, as it were, unintelligible pains. "The cramp," the patient exclaims, and suddenly the womb gives way, or stabbings or cuttings, unusually severe, are felt for some minutes before the laceration in the region of the rent. In a scientific midwifery, violence has no place; you, therefore, I trust, will never lacerate the genitals, by the clumsy use of the lever or the forceps, by hurried abstraction of the head, or by coarse and forcible attempts to introduce the hand into the womb or vagina. Sometimes without this manual violence, the womb yields spontaneously, nor do I know any certain method of preventing this. It is much to be regretted, that (as before observed) we possess, at present, no certain and

timely indication, by which the accident may be foreknown. A rending sensation, and a sudden collapse of the strength, with a small discharge from the womb, are sometimes the first manifestations by which the laceration is indicated, so that there is no room for preventive practice; nor may it be amiss to remark here, that when disruption has occurred, the case, though dangerous, is not hopeless; and that the abstraction of the child by turning may be looked upon as the principal remedy.

Among the accidents of laborious labour, laceration of the perineum, together with the parts adjacent, deserves especial commemoration. More rarely the head has forced its way through the lower extremity of the rectum and anus, the vagina yielding posteriorly. In some few cases the perineum dilating greatly under the pressure of the cranium, an aperture has been forced between the genital fissure and the anus, the child leaving the pelvis and passing through the opening. In most instances, however, the perineum gives way, in consequence of the fissure enlarging towards the anus; sometimes directly and extensively, so that the sphincter ani is torn, the anus and genitals of consequence forming but one aperture. Now and then the perineum yields obliquely, the rent being carried down on one side of the rectum, so that the gut escapes; and very frequently, whether direct or oblique, the laceration is of small extent only, perhaps not exceeding half an inch or an inch. When the rents are of small extent they occasion but little inconvenience; when the intestine is involved in the injury, the retentive powers which restrain the fæces, lost for a longer or shorter period, are perhaps never thoroughly restored. When the laceration is carried downward obliquely to the side of the anus, the power of restraining the contents of the bowels remains.

Rude attempts to introduce the hand — the rapid abstraction of the head by embryospastic instruments — or the sudden eruption of the cranium from the pelvis, under the natural efforts, at a time when the perineum is unprotected by the accoucheur: these are the principal causes of laceration; and now and then, perhaps, the rent may be occasioned by the descent of the fœtal shoulders. If many children have been born before, lacerations are less likely to occur, as a rigidity of the part met with in first labours, especially if women are advanced towards middle life, seems to be a principal cause disposing to this accident. Bleeding from the arm — fomentations of the genitals — protective support of the perineum, with resistance to the further progress of the head — are the best preventives of the accident; and, though often urged to do so by friends about her, the patient should not force voluntarily, when the head is at the point of emersion, and the perineum in danger of giving way. Dangerous distention is easily ascertained by feeling the part.

In laborious labours, the urethra is liable to be more or less obstructed, and large accumulations of urine in the bladder may

arise in consequence. Inflammation of the cervix vesicæ, swelling there, perhaps spasmodic constriction of the upper part of the urethra, and the compression of this yielding duct between the head of the fœtus and the front of the pelvis, are the most probable causes of these obstructions. The less the patient drinks, and the more she perspires, in these cases, the better. When the bladder is full, I have often perceived it through the abdominal coverings, forming a large tumour, to be felt distinctly in front of the abdomen lying over the uterus. By cautiously bearing the fœtal head from the front of the pelvis, and passing along the urethra a catheter flattened and small, the urine may now and then be drawn off; but in laborious labour, when there is real difficulty, the catheter sometimes cannot be passed up. If the urine cannot be drawn, delivery must be accomplished artificially, provided the accumulation is becoming so large as to endanger the bladder, and, in general, the retention of the urine indicates much pressure, and the risk of slough, and is an argument for delivery

When the efflux of the urine is prevented, lacerations of the bladder may occur. Sometimes the body of the bladder gives way into the peritoneal sac posteriorly; sometimes the urine forces its way out in front, so as to become diffused in the cellular web externally to the peritoneum; and, in some cases not the least frequent, the back part of the neck of the bladder gives way into the vagina. If the urine be diffused in the cellular web, lying between the front of the bladder and the abdominal coverings, the case must be deemed desperate; if the water escape from the bladder behind, so as to collect within the cavity of the peritoneum, by withdrawing the urine, washing out the peritoneum with the proper cautions, and, tying up the aperture formed by the laceration, judging from experiments upon animals, I conceive that the life of the patient might now and then be preserved. From a successful case under the care of Mr. Gaitskell I infer, that where the neck of the bladder is burst open behind, the part will sometimes close up, provided a catheter be worn for a few weeks. In the case to which I have alluded, the closure was very remarkable and certain. The same practice failed in a second case, where the rent was less extensive. The laceration of the body of the bladder is occasioned by the accumulation of urine, and prevented, therefore, by evacuating it, whether by the catheter or the natural efforts. The disruption of the neck arises from the gathering of water in the bladder, joined with some descent of the neck towards the outlet of the pelvis. In this state of the parts, on entering the pelvic cavity, the head divides the bladder, as it were, in two chambers, one lying above the brim in front of the abdomen, the other below and behind the symphysis pubis. On this latter chamber, as the head advances, whether under the action of the instruments or of the natural efforts, great pressure is made, and by this pressure the bladder may be torn open, the urine issuing out in a sudden gush. From sloughy openings of the cervix

vesicæ openings of this kind differ widely; in the former there is loss of substance, in the latter disunion merely—the former openings, perhaps, never heal; the latter, sometimes.

When urine accumulates behind the symphysis in the neck of the bladder, this part bearing down before the head, the bladder should be emptied with great care, and much attention is sometimes necessary to effect this; sometimes the catheter cannot be introduced, or if it be passed into the bladder, a complete evacuation of the urine cannot be obtained without compressing the bladder extrinsically, by first laying the hand on the abdomen below the navel, and afterwards pressing the cervix where it prolapses behind the symphysis pubis. In these cases of course, the head must not be brought forward too rapidly by the lever or the forceps. These lacerations of the bladder are all of them rare. In general the bladder should be kept empty in all labours. Little drink, much perspiration, spontaneous discharge of the urine, the catheter, are the principal means of securing this advantage. The *flat catheter* recommended by Ramsbotham is an useful instrument. Force is always improper when the catheter is employed. Apertures occasioned by the catheter in the back of the cervix vesicæ, or still more frequently of the urethra, I have myself seen. By gently pushing back the head of the child, room may sometimes be made for the admission of the instrument.

Dreadful contusions and mortifications are apt to occur in laborious labours, nor are they in consultation practice unfrequent. From the rude action of the hand, perhaps from violent efforts to abstract the head with embryospastic or other instruments, from frequently repeated, but unavailing labour-pains; and above all, from impaction of the head in the cavity of the pelvis between the front and back, — the locked or incarcerated head, as it is called, — extensive mortifications, sweeping all round the upper or inferior part of the vagina, may be produced. If these sloughs are superficial, affecting the inner membrane only, they are less dangerous, though adhesions, contractions, and indurations of the vagina are too often the ultimate result. If the labia pudendi or surface of the perineum be injured internally in this manner, the patient generally does well; but if the sloughs lie above and penetrate deeply, death at the end of a few hours, or a few days, is not unfrequently the result, the system giving way under collapse; or should the patient escape, the bladder and rectum are not uncommonly laid open into the cavity of the vagina, in consequence of a detachment of the sloughs. Of the management of these sloughs, when produced, I may take occasion to treat hereafter, confining my remarks at present to the preventive treatment. The more common causes of them, already stated, are the rude pressure of the hand, the violent use of instruments, and the pressure of the fœtal head, whether above or below the brim of the pelvis; and it is important to recollect this, in order that you may be on your guard against them. A frequent pulse by no means generally

implies the risk of slough; but, on the other hand, while the pulse between the pains remains below 110, I think the patient is tolerably secure. I am not prepared to assert, that the contusion producing slough never occurs without collapse of the strength; but in general, an incipient failure of the powers gives us an useful intimation of the bruising of the parts. Many women, if the head remain above the brim of the pelvis, may do well, although they have been in strong labour for more than twenty-four hours after the discharge of the liquor amnii; but in long-protracted labour there is always danger, even when the fœtus lies free in the false pelvis above the brim, the pressure being occasional only; I mean during the pains only. When the head is down between the symphysis pubis and the sacrum, so as to become incarcerated there, and compress permanently the parts between the front and back of the pelvis, and this, too, for hours together, five or six, for example, women may suffer little notwithstanding; but wherever the head is locked up in the pelvis in this manner, there is always reasonable cause for apprehending that fatal contusion and slough will occur, unless the cranium be promptly liberated; for in these cases the pressure is not occasional merely, but continued, not slight, but very forcible; the bladder and rectum being completely obstructed by it, the bladder especially, and the bones of the fœtal cranium becoming displaced. It is much to be wished that some experienced practitioner could discover for us a rule by which we might determine with precision the moment when contusion, likely to terminate in these formidable sloughs, is commencing; for such rule has not yet been formed. I may observe in general, that when the pulse is not permanently rising, nor the strength failing, nor the labour protracted beyond twenty-four hours of strong exertion after the discharge of the waters, if the head be above the brim, nor more than three or four hours if it be locked loosely in the pelvis, nor more than half an hour or an hour if more firmly locked, then the patient is secure against slough; but if the converse of these conditions occurs, sloughs are to be apprehended. Let me add, too, more simply, that a pulse of 110, and vigorous powers, are a plain and valuable indication of security, and that you have good cause for alarm and vigilance when the pulse rises, and the strength begins to fail, and the countenance acquires an expression of anxiety, and there is that aspect which leads the practitioner to remark, that "the patient appears very much worn."

In laborious labour it sometimes happens that inflammations commence in the substance of the cervix uteri and vagina, the rectum and bladder, perhaps, being more or less involved in the disease. A crust of buff upon the blood, an unusual tenderness of the parts between the pelvis and navel in front, and a permanent frequency of the pulse, are, perhaps, some of the most decisive characters of this accident; and venesection and delivery may be looked upon as the most effectual remedies. Fomentations,

leeches, laxatives, and similar remedies, may be proper after delivery.

During easy parturition sometimes, but more frequently under violent efforts, the pulse rises permanently to 120 in the minute; the heat of the surface increases; the tongue becomes browner; the face is flushed, as in typhus fever; the cry of the woman is sharper and more frequent, and she shows herself impatient of her pains, irascible, morose, and perhaps at length delirious. All these symptoms may vanish on delivery; or after parturition is completed, they may continue, terminating at last in puerperal mania, or other troublesome cephalic affections. If the attack be slight, it may be found to yield under the abstraction of stimuli, and a venesection of sixteen or twenty ounces; if more violent, it may require the use of the tractor forceps, or perforator. Wine and other fermented liquors are clearly improper. The symptoms are, perhaps, sometimes produced by the abuse of these excitements; this affection may be denominated puerperal irratability.

In laborious labours the strength sometimes fails, the degree of collapse varying greatly. If the depression of the powers is extreme — the pulse frequent, but failing — the body cooling — the pain remitting — the countenance falling, and death appearing, as it were, in the face — there are, I believe, generally, in such cases extensive and deep contusions; and though the patient may perhaps recover, yet death, in a few days, or a few hours, is to be expected. Delivery seems to be indicated here. A still-born child is probable. But when collapse occurs in these laborious labours, often it is in a slighter degree only, and independently of contusion or slough, it may be produced by the fatigue arising from much labour-pain, want of sleep, pacing the chamber, or other analogous causes. An opiate, or other anodyne, in quantity sufficient to give the patient sound sleep and rest, may sometimes be of service. Delivery is desirable, but if all other symptoms were favourable I should be unwilling to administer instrumental assistance, merely because the patient was a little weary.

Among the accidents of laborious labour, convulsions may be enumerated, but happily their occurrence is not frequent. Insensibility, and spasmodic concussion of the whole frame, concurring frequently with the labour pains, are the leading characters of the disease. Large bleedings, refrigeration of the hand by ice or cold lotions, purgations of the primæ viæ, and delivery, are the principal remedies. Flushings of the face, throbbing of the carotids, noises in the ears, failures of sight, of articulation, of feeling, or motion in particular members of the body, together with a shuddering of the muscles, are, I believe, the more common premonitory symptoms — and convulsions are the more to be apprehended if the patient have been attacked with the disease before. Bleeding, and if of easy accomplishment, delivery, are the best preventives of the attacks.

After-flooding is very common in laborious labours, being per-

haps, rather salutary than injurious; treat it according to the rules laid down. The womb is, from fatigue, indisposed to contract after these deliveries; beware, therefore, of carelessly hurrying forth the placenta, lest inversion should occur. The method of managing the birth of the secundines was explained at large, when we treated of natural parturition.

After laborious labours the fœtus is frequently still-born, in consequence of compression and contusion of the brain; frequently, the form of the cranium is altered; generally, the scalp is much swelled. Pressure on the cord within the womb may also occasion a still birth. No still-born child ought in these cases to be rashly pronounced irrecoverable. The diligent and effective use of the resuscitants can alone enable us to determine whether restoration be practicable; for it well deserves remark, that fœtuses subjected to the higher degrees of compression are sometimes unexpectedly revived; while, in other instances, our attempts to resuscitate, though actively urged, are wholly ineffectual, although from the slightness and short continuance of the pressure during labour, we have entertained sanguine expectations of success. Artificial respiration, and the warm bath, are principal remedies here, and the means ought to be in readiness.

The labia pudendi, and the parts about the anus, sometimes swell greatly in laborious labours; the probable cause of this intumescence is, obstruction of the vessels above — delivery is the best remedy for it. These swellings indicate pressure, and ought always to awaken vigilance.

LECTURE XXIII.

LABORIOUS LABOURS, AND THE USE OF INSTRUMENTS.

After labours that are laborious the woman sometimes recovers as readily as if during the delivery nothing extraordinary had occurred. It does, however, occasionally happen, and that, too, where the labours have beeen managed with the best possible care, that a variety of morbid symptoms manifest themselves, more especially during the first few days; and to the consideration of these symptoms and their treatment we shall now proceed.

After parturition has been accomplished, whether by the use of instruments or otherwise, if the labour have been laborious, much swelling of the external parts, the *labia pudendi* and their adjuncts, is by no means very unfrequent; and this may be accompanied with sloughs — sloughing of the inner surface of the perineum, or sloughing of the inner parts of the labia themselves. These sloughings and swellings, the result of compression and

contusion, are best treated by fomentations and poultices; and the oil of turpentine seems to be of service in accelerating the separation of the sloughs. Of course, the general state of the health will require attention. The oleum terebinthinæ may be applied on tow to the mortified parts, either pure, or mixed with two parts of the oleum olivæ.

After laborious labours suppuration may take place within the pelvis, and matter to the amount of four, six, eight, or more ounces, may collect externally to the vagina and peritoneum in that cellular web which is interposed between the viscera below the brim. Much irritation of the hectic kind supervenes; there is sickness and incrustation of the tongue, purging, sweating, and wasting, and a pulse of 120, 30, or even 40 in the minute, the symptoms altogether assuming a very alarming appearance. In the course of a few days after the delivery the woman may die; or where the symptoms are less violent, the cysts in which the pus lodges may give way, the matter escaping variously, by the rectum, vagina, and perhaps the urethra itself. To detect the matter in these cases may not always be a very easy task; throbbings, shiverings, irritation, hectic, and careful examination internally, are the best diagnostics. Cases of this kind must be managed on general principles: an ascertained accumulation of matter may justify the use of the abscess lancet.

After laborious labours the system sometimes gets into a state of collapse — the result of tha extensive bruising to which I referred in a former lecture. If the symptoms of collapse be not very considerable, the patient may rise out of them at the end of a few weeks, recovering not so much in consequence of any remedy that may have been applied, as from the gradual restoration of the contused parts under their own healing efforts. If, on the other hand, the collapse be very considerable, the body cold, the countenance fallen, the perspiration clammy, the pulse 140, or more, in the minute — the manner of the patient giving indications of debility and oppression, then any treatment, even the most powerful diffusive stimuli, will, I fear, be found of very little avail; and your patient will go on sinking until she die, perhaps at the end of twelve, or twenty-four, or thirty-six, or, at most, eight-and forty hours after the time of her delivery. I have known death from this cause occur as late as the tenth day.

After laborious labours considerable inflammation may sometimes hang about the abdominal viscera, and more especially those viscera which lie in the vicinity of the pelvis; and if you examine internally the os uteri, and parts adjacent, or the vicinity of the navel externally, the inflammation manifests itself by tenderness on compression; and this, too, where the bowels and bladder have been thoroughly evacuated, so that no overcharge of those organs can be the cause of the uneasiness. Together with all this uneasiness of the parts in the vicinity of the pelvis, there is a crusted tongue, and a pulse 120, sometimes 130 or 140; though in these

cases the pulse, I think, does not ordinarily become very frequent. In some instances the inflammation may be seated in the peritoneum — being in general circumscribed ; more generally the peritoneum appears to escape, and the substance of the uterus and vagina, or the cellular web lying externally to the vagina, and other pelvic viscera, is the seat of the inflammation. It is satisfactory to know that these inflammations generally do well, provided suppuration do not occur, and this is by no means very frequent. Violent practices are uncalled for and improper. Do not confound the disease with puerperal fever ; thirty or forty leeches — thirty, on an average, should be applied above the symphysis pubis. Now and then, instead of the application of leeches, blood, to the amount of sixteen ounces, may be abstracted from the arm ; laxatives, refrigerants, and the antiphlogistic regimen for four or five days, will commonly be found to overcome the symptoms. Of the remedies enumerated, leeches are my principal reliance ; and when the patient has a moderate share of strength after the leeches, I am accustomed to lay on three poultices in succession, each for two hours, so as to encourage the bleeding ; the poultices should be large, warm, and soft.

After laborious deliveries sometimes the patient is affected with a certain puerperal irritability, not without its danger ; and this occurs sometimes even in women of the most placid temper. This irritability occasionally commences before the delivery is completed. Anxiety, agitation, susceptibility, perhaps morosity, are very strong characteristics of the affection, and the head and face are hot, and the pulse is frequent, 120 or 130 in the minute, with a certain smartness and quickness of the beat ; the sleep at night is broken ; the dreams are wild ; and sometimes a disposition to delirium appears, the patient talking at random ; the mind in the severer cases becoming altogether disordered. When the symptoms for three or four days together do not rise above the level here given, they gradually subside, the patient ultimately recovering. The chamber may be cooled and darkened ; twenty or thirty leeches may be applied to the temples, perhaps repeatedly ; the scalp may be shaved, and the head may be thoroughly refrigerated by cooling lotions, and bladders charged one-third with ice ; the temperature being moderated by the interposition of one or more folds of flannel, if necessary. Relaxation of the bowels ; opium, in large and tranquillizing doses ; perhaps digitalis, in measure sufficient to operate on the system, may be found of service. Leeches seem on the whole to be preferable to cupping or venesection. A given quantity of blood taken away by leeches reduces vascular action more decidedly, and acts more effectively on the body at large, than the same measure when abstracted by cupping or the lancet. In cases of this kind it is desirable to get the milk into the breast, and to keep it there ; for when phrenitic attacks occur, the milk sometimes disappears suddenly ; an accident always to be regarded with some apprehension. When bleeding has been

premised, and the skin is disposed to perspiration, the effect of larger doses of opium is sometimes very satisfactory. I have seen a sweat break forth upon the whole body, the pulse descending from 130 to 90, or 100 in the minute. A diaphoretic may be combined. The pulvis ipecacuanhæ cum opio is no inconvenient formula. When the irritability is purely hysterical, with quiet and patience it usually passes away.

Rigours, wastings, sweatings, vomitings, purgings, and aphthæ of the mouth, may occur after laborious labours, the pulse rising to 120 or 130 in the minute, and the strength collapsing. In cases of this kind, I suspect there are often inflammation and excoriation of the inner membranes of the stomach and bowels, than which, with the exception of slough, nothing more certainly destroys the vigour of the system. Bear this in mind, when contending with these affections, and take your measures accordingly. Aromatics, chalk mixture, opium, extract of hæmatoxylum, you may give more or less abundantly, according to the effect produced, as in similar attacks occurring after floodings; and I should recommend you, if the purging continue in spite of all your efforts, to remove the patient into the country as soon as may be. A rising ground is to be preferred. I have seen the most obstinate purgings give way under change of air. Should the weakness of the patient require it, an invalid carriage may be used during the journey, and a medical friend should accompany. Solid food is less likely to keep up the diarrhœa than liquid aliment.

After laborious labours your patient is sometimes affected with a retention of urine, which, in general, need not alarm. Two or three times a day the catheter may be introduced; for the less the bladder is loaded, the better. These retentions are the result of inflammation, intumescence, and perhaps some little spasm about the neck of the bladder; you will find them accompanied, too, with inflammatory abdominal symptoms. Leeches, fomentations, and the catheter, are the best remedies. An abscess near the urethra may prevent the flow of urine.

After laborious labours weakness of the bladder is by no means unfrequent. The patient could retain the water well enough before parturition, but after delivery this power is lost; it drips from her continually, and this independently of any solution of continuity by rupture or slough. Sometimes the contents of the bladder will come gushing away under efforts of the abdominal muscles. For months or years this incontinence may last, but more generally, unless the contusion of the bladder have been considerable, this weakness does not last for more than a few weeks. Of the method of managing these cases I shall hereafter speak at large; suffice it, at present, to observe, that much aqueous beverage, and frequently ablution of the vagina by the syringe and tepid water, are the principal remedies. Blistering above the symphysis pubis, or on the lumbar region, deserves a fair trial, when the case becomes chronic.

In these laborious labours, if you have not been attentive to the

evacuation of the bladder, it now and then happens that the back part of its body gives way, making an opening into the vagina direct, two or three fingers, perhaps, being admissible at the opening. Emptiness of the bladder is the best security against these accidents, not of common occurrence; if, however, unfortunately they take place, the best method of treating them is by introducing the catheter into the bladder, and keeping it there, a sheep or bullock's bladder being attached to the lower extremity, so as to collect the water. I know of one case in which a very extensive laceration occurred, and where, by this method of treatment, the aperture healed completely, so that the woman, though the retentive powers were weakened, could, on the whole, retain pretty well the contents of the bladder. In this case there was a legal investigation, and I examined the woman more than once, as you may suppose, with no small care; and though, on the first examination, I could with ease introduce both fingers into the cavity of the bladder, where the catheter could be felt naked, yet, on investigating some weeks afterwards, I found the aperture closed so perfectly that scarcely a trace even of cicatrix could be detected.

Where there has been great pressure in laborious labours, whether from the abuse of instruments or other causes, sloughing may occur, the vagina or rectum being laid open of consequence. When slough of the cervix vesicæ is forming, the patient, at first, is incapable of passing the urine, so that the catheter becomes necessary; after a few days, however, you have the satisfaction to learn, that the water flows under the natural efforts; but no long time afterwards, you are mortified to hear that the retentive power of the bladder is lost, the water at the end of a week or two dripping from the vagina continually. About this time there comes away something which is said to be a piece of skin, and when washed, immersed in water, and examined, it is found to consist of a portion of the bladder and vagina. Examination at this time detects an aperture in the bladder, sometimes small, but occasionally large enough to admit one or two fingers. The method of preventing these sloughs I have already stated; I have told you already that you should never permit a woman to be in labour too long, especially when the pulse is rising; that you are never to allow the urine to accumulate too largely; and that, more especially, when using the instruments, you are always to have the danger of contusion, lacerations and slough before your eyes, being on your guard against too much force. When sloughing of the bladder occurs, I am sorry to say we are not at present in possession of any effectual remedy for it. You should attend to the general health of the patient, in order to give the healing powers fair play; but, without denying the possibility of closure, I may be allowed to observe, that I never saw a single case, and I have been called to many, in which the aperture has been completely healed; a great reduction of its dimensions is sometimes

observed, so that there is scarcely room for the passage of a catheter, but almost invariably a fistulous communication remains. By means of the actual cautery this might sometimes be healed, but the practice is rough.

A slough of the rectum is known by the escape of the feculent matter; happily this accident, more dreadful than the mortification of the bladder, is of much less frequent occurrence. Now and then, however, it does take place, and several cases of this kind I have examined in this Hospital. By ligature, in some cases, and in others by an operation similar to that for hare-lip, a closure of the aperture might, I conceive, be accomplished; and I the rather mention this, because the complaint is so exceedingly distressing that everything, not unreasonable, may be fairly recommended to relieve it. In the course of time the edges of the aperture become callous; and solid fæces may then be retained.

In consequence of the laborious labours great pressure is sometimes made on the nerves, the obturator and great sciatic especially. The trunk of the obturator nerve lies much exposed, immediately below the brim of the pelvis, liable, therefore, to forcible compression when the fœtal head is coming away. As to the great sciatic nerves, their origins are seated on the *sacro-iliac synchondrosis*, being of course much exposed to compression, if the head be large or the pelvis small. Now, in laborious labours generally, the nerves do not suffer, or, at most, very slightly; perhaps, as the head descends, the woman exclaims, "The cramp!" and she requests some person to rub her limbs; by-and-by the birth is completed, — and after delivery the pain is felt no longer. In some cases of rarer occurrence, the nervous structure suffers so severely that the patient remains more or less paralytic for months after her delivery. It is a satisfaction to know, that though the nervous structure does not possess self-healing power of rapid operation, nevertheless it is not so destitute of that restorative energy as some have imagined. Nerves divided by the scalpel will re-unite, as was well shown by the experiments of Haighton; and thus, after labours followed by numbness and weakness of the limbs, recovery may occur, although it requires a length of time, for example several months, for the purpose.

INSTRUMENTS.

When the birth of the child is obstructed, whether from the rigidity of the parts or from the bulk of the fœtus, or from the unfavourable position in which it lies, it becomes necessary occasionally, though but rarely, to have recourse to artificial means of delivery; and these artificial means are reducible to the following, as the principal — premature delivery, the Cæsarean operation, and obstetric instruments; and we will give our attention

to instruments, always a great obstetric evil, but not always to be avoided.

The different instruments received into modern practice are the tractor or lever, the forceps, the perforator, and those instruments which are in use connected with the perforator, — the crotchet, the blunt hook, and the craniotomy forceps. Into two classes these dreadful instruments may be divided, those, I mean, which are designed to bring away the child by reducing its bulk, and those again which are intended to abstract the fœtus without injury either to the mother or her offspring; the latter may be called the *embryospastic* instruments, the former the *embryotomic.*

When you are called to a case requiring the use of the embryospastic instruments, that is, to speak in plainer language, the tractor or the forceps, long or short, before you engage in your operations I would advise you to examine what is the state of the patient. In some cases the woman is in a state of collapse; she has been bruised and lacerated before you entered the chamber, and perhaps you are summoned to the bed-side only to see her die; I have already pointed out the symptoms by which these fatal injuries may be known. In other cases, the patient is in a state of inflammatory excitement, particularly where the accoucheur has properly called for assistance in good time; the skin is hot, the tongue is white, the pulse is high; and when you take away a pint or more of blood, you find it cupped and buffed. In some cases, too, those especially which are under your own care from the first, the woman is still vigorous, and quiet, and placid, when the necessity for instruments is brought under deliberation. In all these three conditions your patient may be, after a laborious labour, — composed, excited, or exhausted; nor ought you to commence the use of instruments till the state of the system has been determined. If there be excitement, bleed.

When you make your examinations, which you should always do before you have recourse to the embryospastic instruments, in some instances the patient bears them well enough, but in others not so: the parts are inflamed, swelled and irritable, and will not sustain the slightest touch. In these cases bleed from the arm to the amount of sixteen ounces, more or less; foment the softer parts, and administer, if you please, thirty or forty drops of the tincture of opium, or a corresponding quantity of Battley's anodyne; and in this manner, as in the case of turning, you may prepare the parts for the operation.

When you are thinking of using the embryospastic instruments, before you operate, ascertain clearly what is the state of the *os uteri*, vagina, and softer parts. If you find these parts are rigid, you must not even think of using the forceps or lever; the very thought is almost sufficient to bruise, lacerate, and destroy. But if, as more generally, you find the os internum wide open, and the softer parts completely relaxed, contraction of the bones being the

cause of the deficiency of room, you are so far justified in having recourse to the operation. Remember this, I intreat you: if the mouth of the womb be shut and the external parts rigid, abusing the tractor or the forceps, you may destroy the patient; but if, on the other hand, the womb be open, the softer parts relaxed, and the head down among the bones of the pelvis, then the lever or forceps may be applied with the fairest prospect of advantage.

Before you apply your embryospastic instruments, even where the parts will allow it, the bladder should be emptied by the natural efforts, or the catheter; provided, indeed, the catheter can be introduced, for this is not always accomplishable. Nor must it be forgotten, when instruments are under consideration, that the loaded state of the intestines may require enemas.

Before instruments are applied, in general the position of the head ought to be made out, and with great precision. Instruments, the forceps especially, you never can manœuvre well, unless you ascertain with nicety the bearing of the head. Without this knowledge, indeed, you may use the instruments, and you may bring away the child, not, perhaps, without an overweening self-complacency; but, after having seen much operative practice, I am persuaded you never can operate scientifically unless the position of the head be first ascertained. When you have acquired sufficient dexterity by practice, the place of the head may be made out, by bringing the patient near to the edge of the bed, (where she ought always to lie when these instruments are used,) by lubricating two fingers of the left hand (generally the most convenient), and by passing those fingers up to the womb as far as may be. Proceeding in this manner you feel the child's head; and by the roundness, the softness, the fontanels, the rising of the parietal bones, not to omit the hair upon the scalp, the vertex presentation may be known. The presentation thus made certain, you may distinguish the situation, by passing your fingers along the sagittal sutures; at the one extremity of this suture, you find the little fontanel, of triangular shape, of small size, and with three sutures concurring at the other extremity; you detect the great fontanel of large size, diamond shape, and with a conflux of four sutures, the frontal, the sagittal, and the two legs of the coronal. There is one part of the head only where the four sutures meet, and that is the great fontanel; there are several parts where three sutures meet; hence it requires more tact to discriminate the little fontanel. Where the little fontanel is, there is the occiput; where the great fontanel is, there is the face, so that in this manner you make out the situation of the different parts of the head with tolerable facility. But further, by observations upon the ear of the child, the observations upon the fontanels may be confirmed. Unless there be an extraordinary want of room, two fingers may be passed between the symphysis pubis and the head, and there you will find the ear of the child; this, by inference, indicating the situation of the face and occiput to the sides of the pelvis. If you can

feel the flap of the ear, your inference becomes still more complete, for, care being taken not to double upon this part, the flap always lies towards the occiput, and the part which is sessile towards the face. Thus, under the vertex presentation, the most common of all, and that, therefore, on which I have enlarged the most fully — by the hair on the scalp — by the roundness — the softness — the fontanels, the sutures, the ear, you may easily make out the position of the head; and this knowledge is peremptorily necessary, if you wish to operate with instruments in a dexterous and scientific manner. Instruments are excellent in gentle and judicious hands, but most destructive if they fall into the hands of the violent and the ignorant.

Where there is a presentation of the *face*, you may sometimes be compelled to have recourse to instruments; and, I apprehend, the presentation of the face will be easily made out, for you, I am persuaded, will be able to distinguish the mouth from other apertures, though I have not always met with those who possessed discrimination enough for this distinction. To the touch of the face, in the new born child, its eyes, its nose, its mouth, and all its various features, your finger should be accustomed; and if you familiarize yourself with the feel of these parts, there can be no difficulty in making out the presentation and situation also.

I repeat it, then, before you attempt to introduce an instrument in laborious labours, sit down tranquilly, considerately, and repeatedly, if necessary, at the bed-side, indeed, as often as the investigation may seem to require; and then make out for examination, to your thorough satisfaction, what is the position of the fœtus, for this knowledge is peremptorily necessary to the dexterous administration of instrumental practice. This point ascertained, before you proceed further, ascertain what is the nature of the difficulty with which it may be your lot to contend. In general, when deliveries are laborious, the obstruction arises from one of three causes — rigidity, disproportion, and unfavourable position of the cranium — of all which we shall hereafter separately treat. Which of these causes may be in operation separately, or in conjunction, in the case under care, should be thoroughly investigated, so that, if an obstetric friend were to come into the room, and say, you are going to use your instruments — why? you ought to be able to give an answer, consisting of something more than mere words.

When instruments are to be used, it is proper to place the woman in a convenient position — that position being selected which may be most commodious to yourself. Some may prefer the sedentary posture, some the recumbent; some that the woman lie on the right, some upon the left; these things are relative to the habits of the operator, and to dispute about them is barren. For myself, I generally place my patient on the left side, close to the edge of the bed, with the shoulders forward, the loins posteriorly, the knees and bosom being approximated, and the abdo-

men facing a little downward — in a word, in the usual obstetric position. Nurses are in the habit of putting a patient in a position just the reverse of this— I mean with the loins anteriorly, and the shoulders behind. Keep clear of the bed-post; the accoucheur has reason to hate those with four posts. If your patient wish to bear with her feet against the bed-post, she may be indulged in smaller difficulties; but, in using the forceps, (especially as you proceed with the delivery,) you will find the post in your way. In laborious labours you must also choose your own position by the bed-side; in general I kneel myself, and have a chair in readiness, so that, if fatigued, I may sit down; this precaution I should advise you also to adopt.

These, then, are the principal steps to be taken, before you use the embryospastic instruments; place yourselves in an appropriate position; let the woman be placed in the position before described, close to the edge of the bed, that the pelvis may lie under the hand; ascertain, moreover, what is the nature of the difficulty; ascertain, too, the position of the child, and do not blindly pull down with the instruments, without this previous knowledge; let the bladder be emptied, and the rectum too, if necessary; let the softer parts be fomented and relieved from the great irritability; if the patient is in a state of collapse, be on your guard, because she may die immediately after, or before the delivery; if she is merely in a febrile state, or in good general health, be watchful still, though she may be expected to do well; generally, before you use the embryospastic instrument, it is proper to take away fourteen or sixteen ounces of blood. Always it is absolutely necessary that the parts should be thoroughly relaxed, and that the dilatation of the os uteri should be complete.

LECTURE XXIV.

USE OF THE FORCEPS AND TRACTOR.

Very dreadful are the evils resulting from the employment of obstetric instruments, and very dreadful, too, are those evils which result from neglecting their administration, when really required. All obstetric instruments are an evil; every additional obstetric instrument is, I think, an additional evil. He is an able accoucheur who contrives a serviceable instrument; but he is an accoucheur still abler who teaches us how to dispense with it. Though instruments are of great value in individual cases, in the sum of their effects upon the sex, they have, perhaps, proved rather a curse than a blessing. Happy might it have been for women generally, and still happier for their offspring, if instruments had never been

invented. All this may be true, and yet it may be equally true that among many cases there are a few, in unhealthy districts especially, in which, to use the obstetric instrument, is a smaller evil than to reject its use, and in such instances it becomes our duty to operate.

Good sense has invented and varied some obstetric instruments; whim, innovation, and sciolism — not to add the spirit of professional adventure — have contrived still more.

Of instruments contrived to assist the birth in laborious labours, the most valuable are — the tractor, the forceps, the perforator, the crotchet, the blunt hook, and the craniotomy forceps. Of these instruments, the latter are designed to facilitate the birth of the fœtus, by reducing its bulk, and may be called the embryotomic; while the former, or embryospastic instruments, as they are denominated, are contrived to abstract the fœtus without injury either to the mother or her offspring.

When called to a case of instrumental delivery, you will usually find the system in one of three conditions — collapsed, excited, or in a state of vigour and comparative calm. When the patient is excited, take away, on an average, sixteen or twenty ounces of blood; nor is this practice improper, when the excitement is not conspicuous, but the lancet must not be used; if collapse have occurred in a high degree, contusion, or laceration, are probable here, and, before you operate, an unfavourable prognostic may be given. The heat, pulse, tongue, and countenance, are the principal sources from which, in these cases, our judgment is derived.

When called to a case of instrumental delivery, before you employ the embryospastics, let the rectum be cleared, if loaded; and, if practicable and safe, let the bladder be evacuated by the natural efforts, or the catheter; the urine, however, should not be drawn, unless this may be accomplished without violence. Again, if the os uteri be no larger than a crown-piece, instruments will probably tear it; if the vagina or genital fissure be rigid, laceration, contusion and slough may be expected; if the parts are inflamed, swelled, and irritable, instruments are unsafe — the softer parts ought to be relaxed most completely, and the os uteri ought to be wide open, and the inflammation and irritation ought to be subdued by bleeding, before embryospastic instruments are employed. Before you use the embryospastic instruments, obtain a just notion of the position of the womb, the ovum, and the head of the fœtus. You may readily acquire a knowledge of the position of the uterus, forming a large tumour, which occupies about two-thirds of the abdominal cavity, the fundus lying forth above, beyond the ensiform cartilage, and the mouth and neck resting on the brim of the pelvis below, so as to be directed towards the inferior extremity of the sacrum. In or near the fundus of the womb it is, (above therefore, and beyond the ensiform cartilages,) that the loins and lower limbs are deposited, and when the os uteri is open, in the pelvis it is that we find the cranium various in its positions; at the brim,

cavity, or outlet, under presentations of the face, vertex, or forehead, with a situation of the face to the front, the side, or the back of the pelvis. The position of the head is ascertained by examination; and the rules of examination have been already given at large. Before you have recourse to embryospastic instruments, it is desirable, though perhaps not peremptorily necessary, that you should have a just notion respecting the nature of the obstruction, arising usually from one of three causes — rigidity, want of space, and unfavourable position of the head. Examination is the means of detecting them. When on the different varieties of laborious labours, I shall enter with more detail into the consideration of these difficulties, and our means of ascertaining them.

By different operators, women, when embryospastic instruments are employed, are placed variously, the sedentary and recumbent postures, or the position, on the right or left side, being the principal. According to the habits of the accoucheur, one or other of these positions may, in any given case, deserve the preference; for myself, I am accustomed to put the patient on the left side, and close upon the edge of the bed, with the shoulders forward, the loins posteriorly, and the abdomen a little below; and if I think a bearing point desirable, I place the feet against the post of the bed; directing the nurse, usually large, round, soft, and heavy, to sit on the bed, with her back resting against the lumbar-hollow, if I wish to prevent the sudden starts of the patient. In using the tractor, it is more especially necessary that the pelvis should be securely fixed. When the posture of the patient is arranged, you may then place yourselves at the bed-side, in any way most commodious; kneeling on a pillow, or sitting on a low chair, and it may sometimes be convenient to change from one position to the other, as the operation advances.

THE LONG FORCEPS.

The long forceps, from end to end, measures about fourteen inches; and when properly applied at the brim of the pelvis, it lies obliquely, with its point directed towards the navel, and its shank upon the perineum. By a distinguished surgeon of the last century, Levret, the long forceps were laterally incurvated, so that by this curvature, on placing the forceps in the pelvis, the handles are thrown forward from the sacrum, and the perineum rendered more secure. Forceps, both straight and incurvated, I have repeatedly used; and after some experience of both, I decidedly prefer the straight. Lateral curvature may protect the perineum somewhat, but its most certain security is derived from the prudence and gentleness of the accoucheur. The blades of these long forceps, in the method of using them hereafter recommended, may be applied to different parts of the head; as, however, they are more generally laid over the forehead and occiput, it is to

these regions of the cranium that they are with the greatest nicety adapted; and they conform to the cranium with great exactitude. Unless the blades be elastic, however, absolute adaptation can, I conceive, never be obtained; for while the form of the instrument remains unchanged, that of the head itself varies. Smellie's lock is decidedly the best; the lock should be loose, so as to admit a conjunction of the blades, although they are not brought into exact apposition with each other; for, in applying them to the head, this apposition cannot always be obtained. The instrument should be strong, and free from points or edges. Cleanliness renders it desirable that the forceps be not coated with leather.

I do not like to see an elegant pair of forceps: let the instrument look like what it is, a formidable weapon. *Arte, non vi,* may be usefully engraved upon one blade, *Cave perineo* upon the other.

There are various cases in which you use the long forceps; but as it is my object always to simplify our observations as much as may be, I shall confine myself on this occasion to that case in which the use of them is most frequently necessary, and which, properly understood, will enable you to comprehend their management in all other cases. This case, of all others the most frequent in its occurrence, consists of those laborious labours in which the child's head is detained at the brim of the pelvis, the face lying to the one, and the occiput to the other side; a large head, a narrow pelvis, and other causes, impeding the descent.

In cases of this kind, having warmed the forceps, not displaying them in the room, or holding them openly before the fire, but plunging them for this purpose into water of a proper temperature, or grasping the blade in the hand, you prepare for introduction. Now if the forceps are straight, you may first introduce either blade indifferently; but if it have a lateral curvature, select your blade, so that, when introduced, the concavity of it may lie towards the symphysis pubis, and the convexity towards the sacrum, the shank of consequence receding from the sacrum. The blade being selected, take the handle of it in your right hand, and then slide up one or two fingers of the left into the cavity of the uterus, so as to interpose those fingers between the cervix uteri and the child's head: an operation which, if you are fit to use the long forceps, you may very readily perform. That, in this stage of the process, it can never be proper to carry the whole hand into the pelvis, I will not venture to assert, but in general this method is needless, and being needless you will, I presume, agree with me, that it is highly improper, as there is a risk of lacerating the vagina. Having then interposed two fingers between the cervix uteri and the child's head, and this on the side of the pelvis; for in the side it is that the pelvis is generally most roomy; you pass the blade of the instrument upon the fingers, and recollecting the aphorism *arte, non vi,* with the utmost tenderness and gentleness, not forgetful that you are operating on the softer sex, and that a single rude thrust may pass

the blade through the vagina, often asking the patient if you give pain, you very gently work the blade of the instrument along the side of the pelvis, where it ordinarily meets either the face or the occiput of the child, over which it glides and lies. And here let me remind you of what was before stated, I mean that the head being at the brim of the pelvis, the basis of the cranium lies above and exteriorly, while the summit is placed below and towards the coccyx, and the point of the sacrum. In accordance, then, with this position of the head, the blade must be placed; that is, the point must be directed towards the umbilicus, and the shank must bear backward upon the perineum, and thus the instrument will be found to lie very commodiously upon the head. The first blade being placed in this manner, you secure it in this position with the thumb and the two last fingers of the left hand, afterwards insinuating the two remaining fingers, the first and second, so as to prepare the way for the introduction of the second blade. To pass up this part of the instrument, take, as before, the handle in the right hand, and having interposed the fingers between the child's head and the cervix uteri, and towards the back of the pelvis, so that the back of them lies near the sacro-iliac synchondrosis, pass the second blade along the fingers in the back of the pelvis, till you get it about half way to its destination. Having thus passed it half way towards its destination along the back of the pelvis, you work it with gentleness, carrying it in a lateral direction, till you have transferred it completely from the back to the side of the pelvis; and then you carry it high up, so as to lay it over the child's head, the point being directed towards the umbilicus, and the shank being carried backward upon the perineum, in such a manner, that the two blades are brought as near as may be into opposition to each other.

Of the two blades first introduce that which lies below in the left of the pelvis; for you will find on trial, that in this mode the junction to the lock will be most easily accomplished. Here perhaps you will ask me why, in introducing the second blade, I do not carry up the instrument first along the side of the pelvis? The truth is, this may be done sometimes commodiously, but unless the pelvis of your patient lie close upon the edge, the bed furniture under this method of introduction frequently lies in the way; an inconvenience which you may avoid, by first sliding the blade, as directed, along the hollow of the sacrum, care being taken to keep clear of the aperture leading to the rectum. When then, in this manner, with the utmost gentleness, slowly, and without affected rapidity, the blades have been applied to the head, lock them; careful in forming the junction, that neither the linen of the patient, nor the perineum, are intercepted by the joint. If any portion of the perineum be included when you lock the blades, the woman exclaims, "You are cutting me," when, of course, it becomes necessary to separate them immediately, to unite them afterwards with more caution. When the lock is completed, you

may then, if you please, tie the handles by means of a riband, taking care not to draw the ligature too closely, lest you should occasion the blades forcibly to grasp the cranium, so as to compress the brain and kill. Draw the ligature with that degree of tension only, which will give the blades their bearing on the head; this is all the pressure the case requires, and in every operation of midwifery, the less force you use the better.

Having applied your instrument before you proceed to abstract the fœtus, recollect the two aphorisms already mentioned — *arte, non vi*, and *cave perineo*. Having duly prepared the mind, by considering how requisite it is that you should be very gentle, and how great are the injuries which you may inflict by rudeness and violence, proceed. And here be it observed, as we enter on the next step of the operation, that if there are no pains, which sometimes in the worst of labours there are not, you must draw down in the absence of the uterine action; but if the woman have her efforts every five or ten minutes, instead of making the operation entirely artificial, you ought to wait and co-operate with the pains, often rather leading the head into the world, than pulling.

Even where pains are wanting, although you cannot co-operate with the natural efforts, yet I would advise you to imitate Nature, the fruitful mother of all the arts. Do not in these cases continue pulling without intermission, till you have got the head through the pelvis, but make an effort, and then pause for some four or five minutes; again making another effort, and again pausing, and proceed in this manner, till you gradually work forth the head; not forgetting, during the intervals of cessation, to examine the pulse, and to observe the countenance. That the smallest force which may bring the head through the pelvis is the best, you will no doubt all agree. Those who have been engaged a great deal in *difficult labours*, may now and then venture on the higher degrees of effort, to be conceded only to such as have had much experience; but in general, I would advise you not by any means to use the greater force; for if you do, the child is generally still-born, and by contusion, fatal injury may be inflicted on the softer parts of the mother. If gentle efforts are insufficient to bring the head easily through the brim of the pelvis, I believe the better practice is to have recourse to the perforator.

If the pulse be 120 or 130, before you commence your operations, it is clear that you cannot, from counting the beats, take an intimation whether the softer parts have or not sustained injury; but if, before the forceps is applied, the pulse is under one hundred in the minute, then, should contusion be produced by your efforts with the instrument, the rise of the pulse will indicate it. Without a rise of the pulse, contusion, I incline to think, rarely occurs, and if you find the pulse mounting from 110 to 120, twenty-five, thirty in the minute, it is always proper to beware. After every effort with the forceps, therefore, count, waiting two or three minutes, so as to allow the beats to subside after the

muscular exertion, and count completely round the circle. If you find it below one hundred, no serious injury has been inflicted; if the frequency is increasing, although it do not necessarily follow that serious injury have been inflicted, yet the existence of contusion becomes probable, and further efforts must not be made without much further consideration. In using the forceps, I am myself careful never to neglect, between the efforts, this examination of the pulse. In drawing with the forceps, the instrument not unfrequently slips from the head, this perhaps being rather an advantage than an evil, as it may preclude too much extractive force. It is easy to replace the instrument, and repeatedly, if necessary.

In abstracting the head with the forceps, you will find it an advantage to swing the instrument a little from side to side, giving it an oscillatory movement; sway the instrument extensively, and you will lacerate the perineum; it is only a confined motion that may be safely tried. Many efforts are not usually required; if, when the head is detained at the brim, it cannot be brought through the superior aperture by five or six pulls, it may be better to resign the attempt altogether, wholly, or for a time. An imaginary line, stretching from the umbilicus to the coccyx, is the line in which the cranium passes the brim, and in this direction, on the whole, (the forceps, however, bearing a little forward from the perineum,) the embryospastic force should be applied. At this time the perineum must be guarded with solicitous care.

On using the long forceps, according to the rules here prescribed, the cranium will frequently be found to descend with facility, more especially if the uterine efforts co-operate. When the coaretation is more considerable, the abstraction of the head may not always be safely accomplishable. In these cases, if immediate delivery be necessary, you must have recourse to the perforator, but should this not be requisite, you may withdraw blood — watch the patient, and wait a few hours, when the head, becoming moulded by the uterine efforts, and descending lower in the pelvis, under a second essay of the forceps, the fœtus may be safely brought forth. Thus, in the evening of the day, I have seen a living fœtus abstracted by the forceps, where no prudent use of the instrument could have withdrawn it in the morning. The cranial bones of the fœtal head are connected by cartilage, and the cranium in consequence becomes capable of readily changing in form and diminishing a little in bulk, the principal adaptation being obtained by the marginal lapping of the one parietal bone over the other, and by some little advance of the os occipitis, which may get forced beneath the edges of the ossa parietalia.

By these measures, with gentle embryospastic effort, co-operating with the pains, or imitating the pains, swaying the instrument a little from side to side, abstracting on the whole in a line stretching from the navel to the perineum and coccyx, very careful not to lacerate the perineum, not repeating the efforts too often, nor using

a force too great, you gradually bring the head forth through the brim; and when once you are passed the superior aperture, you generally find the further progress of the delivery easy; for it is at the brim alone, most frequently, that the narrowing exists. Now, when the cranium is at the outlet, some, inconsiderately, proceed with the extractive efforts, promptly bringing forth the head, but, at the same time, lacerating the parts, and laying the rectum and genital fissure into one opening. This is one of the nicest parts of the delivery. At this time, therefore, different practices may be adopted, and we may withdraw the instrument, and commit the birth to nature; or we may continue the application of the forceps to the head, gently assisting the descent with the instrument; or, removing the long forceps from the face and occiput, we may lay the blades over the ears, or we may use the lever, or the short forceps. For myself, when the head is at the outlet, if the emersion require assistance, I generally retain the long forceps in their original situation over the face and occiput, supporting the perineum with the hand, and gently leading the head towards the mons veneris, very careful not to lacerate; but if, as generally, the natural efforts are fully adequate to complete the delivery, after the passage of the brim, I then remove this dangerous instrument, and merely sustaining the perineum by manual pressure, to these efforts I trust. Should the forceps be used in this stage of the delivery, I advise you to hold the handles by the thumb, and a single finger only — a useful hint that you are not to employ too much force. As the head emerges, the face becomes turned upon the hollow of the sacrum; this turn you ought to encourage, for by means of it the long diameter of the head is brought into correspondence with the long diameter of the outlet.

The grand *error* you are apt to commit, in using the long forceps, is *force*. In violent hands, the long forceps is a tremendous instrument. Force kills the child, force bruises the softer parts, force occasions mortifications, force bursts open the neck of the bladder, force crushes the nerves — beware of force, therefore; "*arte, non vi.*" Other errors, too, there are, against which I beseech you to guard. You may use the forceps without need; you may try to use it when the parts are rigid, and the os uteri is not fully expanded; you may attempt to apply it, without knowing the position of the head; you may oscillate the instrument too extensively from side to side; you may draw without intermission, instead of imitating the pains; you may close the handles too forcibly by the hand or ligature; you may hurry the head through the outlet; you may neglect to throw the face towards the sacrum; you may forget the perineum; you may fail to conduct the head, when it emerges towards the abdomen and the mons veneris, drawing it too much upon the perineum. Fool-traps are set close here; it is difficult to enumerate or to avoid them all.

TRACTOR OR LEVER.

The next instrument, the use of which I propose to describe, is the tractor or lever, an instrument excellent, and of great effect in dexterous hands. If skill and judgment are wanting, even the tractor may inflict dreadful injuries; but in such hands, still greater mischief may be expected from the long forceps; to you, therefore, I recommend its use as the safer instrument of the two, — possessing also, in an eminent manner, the advantages of portability and ready application. By different practitioners, in different times, a variety of levers have been contrived; but one of the best that I know of, and that which, I believe, is generally allowed to have its excellences, is the lever which was used by the late Dr. Lowder, resembling somewhat a single blade of a pair of forceps, whence it is often called the *single blade*. Its length should be about fourteen inches. For the convenience of the pocket it may be composed of two parts, separating in the middle, and uniting by a screw-joint, which may be secured by means of a catch or spring. The handle of the instrument should be large and roughened, and larger at the end, to yield a more tenacious grasp. The shank should be strong, for I have heard of its breaking short when in operation. I think it is as well, provided you are going into the country, to have two blades; one with a bold curve, the other less incurvated. The lever, with the milder curve, introduced more easily, is liable to lose its hold; the bolder curve is introduced with greater difficulty; but when once applied to the head, it keeps its place with greater tenacity, and enables you, therefore, to use a more effective effort.

The cases in which the lever may be employed are various, and I might bewilder you by relating many; but as with the long forceps, so here, in a view to practical information, I think it convenient to confine my remarks to a single case only, for this case, comprehending in itself all the general principles of management, will enable you to understand the method of manœuvring the lever in all the other cases where instrumental help may be required. Now the case in which I propose to describe the use of the lever, is that in which I have already been explaining the use of the long forceps, and which, among the laborious labours, is of all others the most common in its occurrence; that labour, I mean, in which the cranium is detained at the brim of the pelvis, in consequence of a want of room between the front and back.

By different teachers and different practitioners, you will find different rules laid down for the management of this instrument. Of these, however, the best, in my judgment, are those of Lowder, as improved by Mr. Gaitskell, and recorded by him in the Medical Repository of September, 1823; and I would advise you by all means to make a copy of these rules, for, to me, they appear on the whole excellent. When you are about to use the instru-

ment in Lowder's mode, the rectum should be cleared, if necessary, and the bladder should be evacuated; the woman too ought to be placed upon her left side, near the edge of the bed, with a bearing of the feet upon the posts, and the softer parts should be thoroughly relaxed, and the os externum et internum should be open; and all those preliminary and precautionary measures should be observed, which were enumerated when we treated of the long forceps. Before you use the tractor, you should have a clear reason for doing so; so that if anybody should enter the room, and ask why you are going to use the lever, you might be able to give him a good and sufficient answer; because there is a contraction of the brim of the pelvis; because there is a bearing on such and such a bone, so that without assistance the cranium cannot descend. Moreover, you cannot use the instrument with science or safety, unless you have ascertained clearly what is the position of the head; and if your skill is such, that you deserve trusting with an instrument of this sort, you will be able, with proper examination, to make out this position with ease.

Let us suppose, then, that these precautionary measures have been taken; let us suppose the parts to be lax, and the rectum and bladder to have been emptied, the posture of the woman to be commodious, and the position of the head to have been ascertained, the face, for example, lying to the left, and the occiput to the right side of the pelvis, and let us suppose, too, that the deficiency of room and the nature of the obstruction have been clearly proved and detected, — under such conditions, how are we to use the instrument?

When you are going to introduce the lever, the head being at the brim, you had better first pass up all the four fingers of the left hand, and taking care that you do not lacerate the parts, of which there will be but little risk, if they are thoroughly relaxed, you may interpose those fingers between the side of the occiput and the sacro-iliac synchondrosis, and this with a view of preparing the way for the insinuation of the blade. This point accomplished, you may then take the instrument with your right hand and glide it up between the fingers and the side of the occiput, as usual — *arte, non vi* — with the utmost gentleness, taking five or ten minutes for the introduction if necessary, recollecting that the end proves everything, and that if no injury be inflicted and the patient do well, it matters little whether you occupy ten minutes or ten seconds with the introduction, for, although a needless tardiness is to be condemned in instrumental practice, hurry is more dangerous than delay. In this manner, then, having placed the blade upon the side of the occiput, you withdraw your fingers and lay hold of the shank at the screw, that is, at the centre of the instrument; and still grasping the handle of large size with the right hand, you manœuvre the instrument a little, so as to bring it over the occiput, into the side of the pelvis. At this time the tractor takes the position of the long forceps, lying over the back

of the head, with the shank behind and the point advanced; in a word, on a line which stretches through the middle of the superior aperture from the umbilicus to the perineum — and thus the blade bearing firmly on the occiput, you have great power over the head.

The instrument being applied in this manner, you grasp the handle with the right hand, and the middle of the shank with the left, and by the co-operation of the two, pressing down upon the cranium, you support a steady bearing on the occiput, without, however, resting on any part of the mother as a fulcrum; for the instrument ought to be used, not as a lever but a tractor. Securing the head in this manner, you wait for a pain; and when the uterus is in action, you draw; sometimes even drawing a little when the pains are feeble; for, by drawing, the strength of the pains may occasionally be increased. The head advancing, and the pain ceasing, pause, not suffering the operation to be altogether artificial, but co-operating with nature, and the pains recurring, draw again; and thus, by repeated efforts, sometimes two or three only, sometimes twenty or thirty, you bring the head down through the brim into the cavity of the pelvis, at the same time depressing the occiput, when, very generally, the whole of the difficulty is overcome. The head being, in this manner, by the first step of the operation, brought down into the cavity of the pelvis, at the close of it, we usually find the chin lying on the chest, and the head, of consequence, occupying but little room; for it is an excellence in the tractor, that it not only draws down the head, but that, depressing the occiput, it at the same time brings the chin upon the chest, so as to put it into the position most favourable to transmission.

In making these efforts with the tractor, remember that the smallest force adequate to your purpose is the best; that a judicious and well-managed gentleness is peremptorily requisite; and that death will ensue from violence; after every effort, therefore, as in using the long forceps, you ought to look at the countenance, and count the pulse, ascertaining in this manner whether you are or are not inflicting injury on the softer parts.

When the head is in the pelvis, the natural efforts will frequently expel it, and therefore, as in using the long forceps, it may often be better to commit the birth to the natural efforts. I will suppose, however, that the natural efforts are inadequate for this purpose; in this exigency it becomes proper to give further assistance with the tractor, changing altogether the position of the instrument. For this purpose, first carry up two or three fingers of the left hand over the face of the fœtus, interposing them between the head and the bones upon the back of the pelvis near the synchondrosis, where the face usually lies; then taking your instrument in the right hand, glide the blade over the face of the child, carrying it so high that the fenestra, by which I understand the opening in the middle of the blade, may admit the chin, the limbus resting

upon it. Having accomplished this, withdraw your fingers, and lay hold of the shank at the screw-joint as before, and giving a lateral movement by the co-operation of the two hands, so change the position that the shank lies over the ear, the screw which is in the middle being in a line with the vertex, and the point of the tractor still resting on the chin, the instrument lying over the side of the cranium like one of the blades of the short forceps. In this way, having obtained a very secure hold of the one side of the cranium, planting two fingers, the first and second, on the other side, you lay hold of the shank with the thumb and two remaining fingers, and grasp the head as securely as if within a pair of forceps. The pains coming on, you then draw down without violence; after every effort, as before, counting the pulse; and moreover, in drawing the head down you are careful to direct it as much in the axis of the outlet as may be, conducting it towards the mons and from the perineum; for by so doing you greatly diminish the risk of lacerating this part.

In using the tractor, the following are the *errors* which you are liable to commit, and with the enumeration of which I shall conclude the lecture. You may introduce the lever before the softer parts are thoroughly relaxed, and before the os externum and internum open: of this error, contusion, laceration, and death may be the consequences. Again, when the head emerges from the outlet — in an unguarded moment, particularly if, as frequently, the head be large, you may tear the perineum so as to lay the genital fissure open into the anus. Further, you will observe, that the lever is to be used in two modes; being applied over the occiput when the head is at the brim, and over the sides when it is at the outlet; hence another error which you may commit, I mean the applying the lever without considering the situation of the head, whether it be at the brim or the outlet of the pelvis; and unless this be ascertained, assistance cannot be administered with this instrument in a scientific manner. The using continual extractive force, without waiting for the pains, is another grand error which you may commit. Here, as on so many other occasions, the stoical maxim is excellent: *sequere naturam* — imitate nature; first, because occasional efforts are less likely to injure the woman than continual extractive force; and secondly, because the instrument may prove powerless without the assistance of the pains. When you are not drawing down, to continue bearing with the blade upon the cranium is another error. If you have a fold of the umbilical cord between the head and the instrument, by a continual bearing on this you may interrupt the circulation and destroy the child: and even if you have not, continued and strong pressure may so far injure the brain, that it comes into the world still-born. Remember, therefore, when you are drawing, that it is during pain only that the effort should be made, and that when the pain ceases, the tractor should be a little raised from the cranium.

LECTURE XXV.

SHORT FORCEPS.

If you have dexterity enough to make use of the long forceps, it will rarely happen that you will find it requisite to have recourse to those which are short. When the head of the child is so low down in the pelvis that it lies within the reach of this instrument, in general it will be found that no assistance of the instrumental kind is required; and I have observed already, that without a peremptory necessity, instruments are not to be used at all; and even in those few cases where there is at the outlet such deficiency of room, or other obstruction, as to impede the passage of the child, and to render it necessary to have recourse to instrumental assistance, should the long forceps be rejected, you will find that the instrument already commended, the vectis, or tractor, sufficient to abstract the fœtus, so that in this case also the short forceps is not required. On this account it is, that it has rarely happened that I have had recourse to the instrument I shall now describe — an instrument, however, in some cases, and especially to those who are unskilled in the use of the tractor or long forceps, not without its advantage. This instrument is distinguished from the longer forceps by its brevity, whence it is denominated the short; this forceps being formed for seizing the head, when it is lying very low in the cavity of the pelvis, or at the inferior aperture.

In some cases the blades of this instrument may be applied, and with advantage too, over the face and occiput; the instrument, however, has been formed to lie upon the sides of the head, the lock being in apposition with the vertex, and the point with the chin, while the ears lie in the fenestra — the head, in a word, being inclosed by the forceps. Accordingly, if the head be of the standard and ordinary make, the short forceps, when applied to the cranium in this manner, will be found to fit exceedingly well.

Of the short forceps, different varieties have been recommended by different practitioners, but I forbear to enter into long disquisitions here, as the consideration of these many varieties would be a waste of time. Breaking loose, however, from this intention, on two or three kinds of the shorter forceps I shall offer a few remarks.

Dr. Hamilton, the able obstetric professor of Edinburgh, has proposed a pair of forceps, (the contrivance probably of his earlier practice,) of which I can by no means in candour approve. To omit the consideration of the shank-hinge to join their blades, the forceps, I may observe, is formed with a lateral curve, in the manner of the long forceps. This lateral curve, even in the long forceps, I am, on the whole, inclined to condemn; and, therefore,

though I am provided with both instruments, in the long forceps, most used in my own practice, the shanks are not incurvated, but straight. We have all, however, a different tact in operating; and to some I can readily conceive, that the curved long forceps may be preferable to the straight; yet, granting this — without the proof of arguments that are not yet come to my hearing — I never can allow that the *short* forceps derive any advantage from the lateral curve, which seems to me to render them less commodious. The object of curving the forceps laterally, is said to be that of protecting the perineum, by carrying the shanks of this instrument forward from this part towards the thighs. Now, to consider this a little: suppose the head is at the outlet of the pelvis, the face lying in the hollow of the sacrum, and the occiput lodging under the arch of the pubis, you apply the short forceps. Suppose, moreover, your forceps are straight, you place them on the head, with the lock to the vertex, and the point over the chin, the whole length of the blade stretching across the sides of the head and the ear. You may perceive that when your instrument, though straight, is properly applied in this manner, there is no approximation of the shanks to the perineum, so that the protection of the lateral curve becomes useless, the part being in no danger from the instrument, even when its shanks are straight. Apply now the curved forceps; in the same case, the shanks recede a little further from the perineum it is true, but the perineum was cleared before, and this additional retreat, wholly unnecessary, is no additional security. To take another case: suppose the head to be at the outlet of the pelvis, or near it, the face lying to the one, and the occiput to the other side; and suppose further, that you apply the short forceps, straight in the shank, and draw down according to the rules which I shall presently prescribe. When the head is in this situation, if the blades be placed in the usual position over the ears, one lying against the pubes, the other against the sacrum, you may observe that the shanks rest but little upon the perineum; and even if they bore towards the perineum more forcibly, under this application of the instrument, Dr. Hamilton's curve will not carry the shanks from the perineum. It merely carries the handles of the forceps down to the side of the pelvis; from the perineum it does not remove the shanks one iota. So that to me it appears, the lateral curve, always more or less incommodious, is of little or no advantage to the perineum, whether the instrument be placed in the front and back of the pelvis, or on the sides. The short forceps, with lateral curve, therefore, I decidedly disapprove; if you use this instrument at all, give a preference to the straight.

Of the straight forceps, there are two forms which I think deserve your approbation, though much nicety in the shape of the instruments is really not of much importance. The two forms of the forceps are those of Dr. Orme, and those of my predecessor, Dr. Haighton. Dr. Orme's forceps are to be commended for their exact

adaptation to the sides of the head, and are formed with the blade and the fenestra so narrow, that, as you may perceive, the opening will scarcely admit the fore-finger. The main defect chargeable upon this instrument is, that when laid over the side of the head in the usual manner, the limbus adds to the bulk of the cranium; where, if instruments really be required, it is generally already too large; I mean over the protuberance of the parietal bones. Now Haighton's instrument has the advantage of a large fenestra; the limbus, the bar of iron forming the blade, and containing the fenestra, being made a little thinner; so that the protuberance of the parietal bones lying in the fenestra on a level with the limbus, or even projecting a little beyond, there is no addition of bulk over the protuberances, and the head is not further enlarged, where in general, as before observed, it is already too bulky. If there be any defect in the Haighton forceps, it consists in the breadth of the blades, which is so great, that they are not very easily passed up through the genital fissure, and it has been complained of in this respect; but it is to be recollected here, that you are never to use this instrument, except where the softer parts are thoroughly relaxed, when the blades will pass with facility; if the softer parts are rigid, so that the introduction may be attended with difficulty, you ought not to make use of them at all.

The cases in which you may use the short forceps are principally the three following: first, those cases in which the head is at the outlet of the pelvis, the face lying in the hollow of the sacrum, the sagittal suture bearing on the perineum, and the occiput lodging under the arch of the pubes — the position of the head in ordinary labour, when the fœtus is upon the point of entering the world. The second case, somewhat different from the former, is that in which the head is descended to the outlet of the pelvis; but where the face is lying forward upon the symphysis pubis, the occiput and vertex bearing on the perineum and sacrum, and where, owing to the great pressure on the perineum and parts adjacent, there is great obstruction to the passage of the head. The third case of intermediate character is, when the head lies in the cavity of the pelvis, but the face is lying towards the one, and the occiput towards the other side, that turn or partial revolution of the cranium which precedes delivery, and places the occiput under the arch of the pubes, being as yet unaccomplished. Under all these three positions, then, the cranium being descended into the cavity of the pelvis, the use of the short forceps may be required, — when the face lies in the hollow of the sacrum; when it lies forward, and when it lies to the one or the other side.

There is nothing easier than to use the short forceps in the first and simplest of these cases; where the head is at the outlet of the pelvis, the face in the hollow of the sacrum, and the occiput lies out under the arch. The accoucheur taking one or other blade of the short forceps, for if there be no lateral curve, choice is unnecessary, he passes up two of the fingers of his left hand between the vagina,

and the child's head, on the left or under side of the pelvis, so as to feel distinctly the ear, always of ready access when the head is thus low down in the pelvis. This preparatory measure taken, he then, with the right hand, gently insinuates the blade between the fingers and the cranium, placing the point over the chin, and the lock over the vertex, the position of which parts he has previously ascertained. In this manner, with the utmost gentleness, having placed the blade on the head, he keeps it in that position with the thumb and two fingers, while he interposes the other last two fingers, the first and second of the left hand, between the vagina and the cranium in the right or superior side of the pelvis; and, as before, with the right hand, he carries up the second blade in opposition to the former, the lock being opposed to the vertex, the point to the chin, and the two blades being placed in correspondence with each other, so as to secure the head. The head being secured is this manner, and care being taken to include no portion of the perineum, the practitioner waits for pains, if there be any expectation of them, and then recollecting the perineum, which is on the stretch and in danger of laceration, he leads the head forward a little, pauses, examines, and observes the pulse and the countenance; afterward, as pain recurs, with caution and gentleness repeating his attempts. Beware of pressing the head too forcibly between the blades, lest you crush the head and bruise the cerebral mass. Make no pressure upon the head, except when drawing. Abstract the head gradually by little and little. In making the effort, be very careful to draw towards the symphysis pubis and the thighs, so as to keep clear of the perineum as much as may be. The grand danger to be apprehended in performing this operation is, laceration of the perineum. Watch — beware; security may sometimes require the inspection of the perineum, but this is rare. Without much exposure, the object may, if necessary, be accomplished.

The second case, already mentioned, also admitting the use of the short forceps, is that in which the head is at the outlet of the pelvis, with the face on the symphysis pubis, and the occiput on the sacrum, the sagittal suture bearing on the perineum. In this case, for the safety of the woman, I do believe you will often find it better to lay open the cranium, as the forceps may bruise — tear; and after all, perhaps, abstract a dead child. But before you have recourse to so dreadful an instrument, only not murderous, you should make every prudent attempt to liberate the child uninjured, whether by the lever or forceps. Applying the short forceps, then, in the same manner as before, with the lock on the vertex, the point over the chin, and including the head, you draw down, careful, as you draw, to throw the chin on the chest, and to bear the occiput from the perineum and sacrum, and leading it as much as may be towards the thigh; all which may be very easily effected. Besides this method, however, there is yet another, in which the delivery may be accomplished, and that is, by *rectifying* the position

of the head. Including the head, as before, in the forceps, you turn the face a little to one side, before you draw down; then pausing awhile, you again turn the face a little more to the side of the pelvis, and draw, very careful of the perineum, until you gradually and safely work the face into the hollow of the sacrum, when the unfavourable situation being rectified, the head comes away easily enough, probably under the natural efforts, unaided by further instrumental assistance.

The grand *error* in this case to be avoided is, making such pressure on the softer parts, when the head is abstracted, as may occasion sloughing or laceration of the perineum; more especially when the softer parts are greatly distended, or when the head is extraordinarily large; the fœtus too frequently dying in consequence of this pressure; and hence the remark with which I opened; I mean that in cases of this kind, I am not sure that it will not often be the wiser practice to sacrifice the fœtus at once, by laying open the cranium, as we may thus preserve the person of the mother from these formidable injuries.

The third case in which I may point out the use of the short forceps, is that in which the head is at the outlet, as before, the face lying to the one, and the occiput to the other side. In a case like this, it is rarely necessary to use instruments at all; but want of room, a failure of pains, or a large and unexpected eruption of blood from the uterus, may render the use of instruments necessary. In cases of this kind you may apply instruments in two ways; you may lay the forceps in the sides of the pelvis, over the face and occiput; after which you may gently place the face in the hollow of the sacrum, and the occiput under the arch; subsequently cautiously abstracting the head, with or without the application of the forceps, in the usual manner, over the ears. Or, instead of operating in this manner, you may, if you please, apply the instrument from the first, in the ordinary mode, over the sides of the head, and this you should always do where you can, the blades being made to fit the head in this manner. If you apply the forceps in this way over the ears, in the case under consideration, you must place one blade in the front of the pelvis, and the other behind, where the ears are lying, proceeding on the principles already laid down for the use of the instrument in the sides of the pelvis. For this purpose it may be convenient to introduce first the blade, which is to be interposed between the cranium and the front of the pelvis. Having secured the head, you draw down, and conducting the face into the hollow of the sacrum, gently, gradually, and with great care of the perineum, you deliver as before.

The turning of the face by mistake into the front of the pelvis instead of placing it on the sacrum, is a principal error against which you must guard in managing these cases. When you have secured the head, remember that you are to turn the face into the hollow of the sacrum, and afterwards abstract the fœtus in the ordinary way. Doing the reverse of this, you throw the occiput

into the hollow, and thereby create the very difficulty before considered, and which it is so necessary to avoid. If you will give nature fair play, as you draw down, I believe you will generally find that the face will, of itself, turn round upon the back of the pelvis, or, at all events, that only small and gentle assistance will be required.

There is one other *error* which you may commit in using the short forceps, most extravagant it is, and tremendous as extravagant; I mean the introducing of one blade into the rectum and the other into the vagina, the gut becoming inclosed in this manner between the blade and head. The error is possible, but is scarcely pardonable; the man who is guilty of such enormity, ought to relinquish the name of an accoucheur.

RULES FOR ASCERTAINING THE NECESSITY OF INSTRUMENTAL DELIVERY.

The practitioner who has a moderate share of mechanical genius — who understands moreover, thoroughly, the process of examination — and who, as every accoucheur ought to do, has acquainted himself with the general obstetric anatomy of the pelvis, the child, and the softer parts in connexion with the pelvis — such a practitioner, with the help of a little experience, can find but little difficulty in using embryospastic instruments. To mere dexterity in the use of such instruments, therefore, I would give but small praise. Nay, sometimes the most intellectual accoucheurs are, perhaps, the very men who are the least skilful in the use of these instruments; for never using them unless peremptorily required, (if not engaged in a consultation practice,) they can have but very rare occasion for their employment. In truth it is not so much in the use of instruments, as in the selection of those cases in which the use of instruments is really required, and in the determination of the precise moment when we ought to interpose with instrumental help, that the judgment of the practitioner appears.

The worst consequences arise, no doubt, from the neglect or rejection of instruments, where they are really demanded by the nature of the case; bruises, sloughings, inflammations, suppurations, the death of the mother, and the death of the child, may all be the result; nevertheless, the cases in which patients may suffer because instruments have not been employed, when they have really been required, are by no means frequent in their occurrence, and therefore it is impossible for men, in general practice, to err frequently even in abstaining altogether from the use of instruments in all cases. Really, if you go down into the country, even without the lever and forceps, you may be in practice a considerable time before you find your need of them; though, as your circle of action enlarges, you are likely to feel the want of these arms at last. If you must err, then, take my advice, and err rather by the neglect or rejection of instruments than by their too frequent use, for the cases in which

you may use instruments without need, are as numerous as the cases that may fall under your care, with the exception of the *very, very* few in which these weapons are really required. In the common course of practice, great evil results from using instruments where they are required; young men who feel they have skill enough to manage these instruments, sometimes feel a prurient propensity to have recourse to their use. When, however, you lay your hand upon the tractor or forceps, remember that the accoucheur who is meddlesome may be guilty of occasioning laceration of the perineum, rupture of the vagina, compression and death of the child, inflammation of the abdomen of the mother, and many other fatal consequences, which I have myself had occasion to see; a list of offences, surely, sufficient to alarm the prudent.

To individuals it is no doubt an advantage that obstetric instruments should exist, though to the sex at large it is, perhaps, an evil and a curse; for, if we were to take the aggregate of all the evil and all the good which result from the use of instruments, I do believe it would be found that the total evil has considerably exceeded the advantage derived from this artificial assistance. It is therefore of the utmost importance to you, not merely to learn to use instruments, for if unskilful in using them, in a large town at least, you may often procure assistance; but it is of the highest importance, that you should, moreover, learn to know the cases in which the use of them is required, so that, whether you operate yourself, or choose to put in requisition the assistance of others, you may be able to select cases which are fitting, and to ascertain too the proper moment for action; to the consideration of this point I next proceed.

If an accoucheur of much experience, engaged in a very large practice, can administer the lever with great dexterity, I could pardon him for using this instrument occasionally to save a little time, provided he feel fully satisfied that he can operate without injury either to the mother or her offspring. A sort of amnesty may, I think, be extended to the man who does this; yet the practice is not to be commended; and, as to the administration of instruments pragmatically and officiously, and where any danger may result — *absit* — it ought never once to be thought of.

In consultation practice, you will sometimes be called to cases in which the friends are anxious; and the practitioner is worn out by harassment of many hours at the bed-side, with a mind full of perplexity; the patient herself, especially if she have been delivered by instruments before, is importunately desirous that instruments may be employed again. In cases of this kind I have myself, in some instances, had recourse to the forceps, and delivered the woman with safety; nevertheless, I have considered myself culpable for so doing. The mere desire of the woman, or of the accoucheur who has been previously in attendance, or of the friends themselves, furnishes no sufficient reason whatever why you should use the instruments, for life may be at stake, and

you are not to recommend instruments in an adulatory manner, merely to flatter the feelings, but because, in reason, you perceive that they are peremptorily required.

When women are narrow in the pelvis, it sometimes happens that they have been repeatedly before delivered by the use of the lever or forceps; six or eight children, perhaps, having been born all of them under *instrumental* practice. Now, if a skilful and forbearing accoucheur, one not meddlesome, have been in attendance upon the woman, this is a strong presumptive argument why you should use instruments again; but, after all, it is only a *presumptive* argument, deserving to be considered as a *make-weight* in the scale, but nothing more. A woman may have borne six children, all under the use of instruments, and yet the seventh may not require their employment, because the child, born prematurely, may be of small size; because, too, it may be one of twins or triplets; because, from other causes, it may be unusually soft and small.

When engaged in practice, you will, no doubt, feel disposed to determine respecting the necessity for instrumental aid, by making your measurements of the pelvis. In the preliminary lectures, I endeavoured to explain to you how the pelvis is to be measured; nor would I have this measurement, more especially at the brim, between the symphysis pubis and the promontory of the sacrum, to be neglected. Nevertheless, I have the satisfaction to tell you, and I say *satisfaction*, because the declaration implies a diminution of difficulties, that it is *not* by the nicer measurement of the pelvis that you are to decide upon those cases in which you are to use the embryospastic instruments. If the pelvis be contracted, or distorted in a high degree, you may often, on examination, ascertain, at once, that unassisted delivery is impossible: but, in general, when the tractor or forceps is proposed, the contractions are small. In these nice cases, to determine within a line or two what is the measure of the pelvis, must often be a point of difficulty to the experienced, and, not unfrequently, beyond the skill of an ordinary practitioner; and moreover, if the pelvis be measured with unhoped-for exactitude, we must still remain in doubt as to the bulk of the head, which is very various. It is true, indeed, that this injury might be ascertained by carrying the whole hand into the uterus; but then this is an operation of danger, and should never be had recourse to if avoidable. On these accounts, therefore, although, certainly, the examination of the pelvis ought not to be neglected, I should not advise you to take principally from these measurements the determination whether you will, or not, have recourse to instruments.

The appearance of any dangerous symptoms is sometimes adduced as an argument for the use of instruments, and I allow its force, provided the symptoms arise from the prolongation of the labour, and delivery seem to be the only effectual means of overcoming those dangerous symptoms. If there be tenderness of

the abdomen; collapse of the strength; irritability of the nerves; restlessness; a rising pulse, mounting from 110 to 120, 30, or 40, in the minute; all these are certainly strong arguments for having recourse to instruments. It was only the other day I was obliged to make use of the long forceps; the woman had been in labour for thirty-six hours, and dangerous symptoms beginning to manifest themselves, I felt myself compelled to deliver.

The mere prolongation of the labour, too, is certainly a reason, and a good one, for the use of instruments. You should measure the term from the dilatation of the os uteri and the discharge of the liquor amnii, that being the epoch, or time, at which the heavier pressure begins to bear upon the softer parts; after which, therefore, this pressure is likely to become injurious. It may be laid down as a general rule, that no woman should be left in strong labour for more than twenty-four hours after the discharge of the waters; I say in strong labour, *after the discharge of the liquor amnii*, for if the water be not escaped, and no dangerous symptoms be apparent, it matters little whether she have been in danger for a week, or a day; in the ordinary course of things, no danger need be apprehended. But if, after discharge of the water, the woman have been in strong labour for twenty-four hours, she ought to be delivered on two accounts: first, because after fruitless labour for twenty-four hours, subsequently to the discharge of the water, it is unreasonable to expect that the natural efforts will expel the child; and, secondly, because where labour is suffered to run on beyond a certain time, even though no dangerous symptoms have yet appeared — of a sudden, sometimes, when all seems fair and smooth, the vessel strikes and founders; the pulse rises to 130 or 140 in a minute, the countenance falls, and speedily, or in a few hours afterwards, the woman dies. In these cases there are usually extensive lacerations of the womb.

And thus much, then, respecting the general indications, which are pointed out as the criteria marking the necessity of having recourse to instruments. I have communicated them all, not with the purpose that you may be guided by them, for I shall give you my own indications presently, but rather to prevent you from being misguided. The prolongation of the labour, and the attack of dangerous symptoms to be effectually relieved by delivery only, I look upon as a valid argument in support of the use of instruments. But the convenience of the accoucheur, the wish of the patient or friends, the use of instruments in former labours, the measurement of the pelvis, are all inconclusive reasons, and will not alone bear you out in the recommendation of instrumental assistance. But here, methinks, I hear it said — As you tell us that there is so much importance in selecting the proper moment for the use of instruments, can you prescribe for us no plain rule, by the observance of which the novice in midwifery may be kept near the line of correct practice? This question, I

think, I can answer affirmatively. The rule, which I have repeatedly taken occasion to mention even in preceding lectures, and which you will probably recollect on recital, is — that if a woman have not been in labour for four-and-twenty hours after the discharge of the liquor amnii, and if no dangerous symptoms are manifest, you ought not to interfere: why should you? why not wait? A meddlesome midwifery is bad. But on the other hand, if the patient have been in strong labour for four-and-twenty hours, or, independently of this strong labour for four-and-twenty hours, if dangerous symptoms are apparent, to be relieved effectually by delivery only, let your tractor or forceps be employed; for although it be true, that the use of them be at all times an evil, yet, under these circumstances, to use them is a smaller evil than to refrain. Further, there may be cases of intermediate character, in which the arguments for delivery, or the contrary, may be so very nicely balanced, that, notwithstanding the rule prescribed, it may not be very easy to take your resolution. What, then, is to be done here? In this dilemma, the degree of your instrumental skill should decide, and if you are dexterous, determine the point in favour of instrumental delivery — if unskilful, refrain.

Here, then, is the rule I would lay down, after as much consideration as I have been able to give the subject, and which I would recommend you to follow to the exclusion of all the others, until you have formed for yourselves a better. If the woman have not been in labour for four-and-twenty hours, and dangerous symptoms do not appear, beware of instruments; if she have been in labour four-and-twenty hours, or if dangerous symptoms manifest themselves, then give instrumental assistance; and lastly, if the case be dubious, so that it is doubtful whether instruments ought to be employed or not, then, provided you are skilful in handling instruments, make use of them if you please; but should you be wanting in dexterity, then give a fair trial to the natural efforts, and if they fail you, have recourse to further assistance.

LECTURE XXVI.

EXTRACTION OF THE FŒTUS BY CRANIOTOMY.

Of all the operations of midwifery, there is none, perhaps, more easily performed, than that of perforation; and many a life, I fear, has fallen a sacrifice to this facility of execution. Of all the operations of our art, however, there is none more dreadful, not to say more awful; for call it embryotomy, craniotomy, or by whatever elegant term you please, in this operation a dagger is struck into the head of an innocent child, often still living, and the brains being

reduced to a soft pulp, are suffered to escape at the opening. Much evil, and some good, arises, in society, from not calling things by their right names. This practice, however, I am aware, grows out of the nature of man, and cannot be amended. Hellenize then, and Latinize, as much as you please — "*suave sonat*," but never suffer a polished and classical appellation to bring before your minds an idea of this operation, divested of that salutary horror with which I conceive it ought at all times to be contemplated. Dreadful, however, as the operation is, the safety of the mother sometimes peremptorily requires its performance; and I shall now describe the formidable instruments by which it is accomplished — the *perforator*, the *crotchet*, the *craniotomy forceps*, of which it is sometimes convenient to have two pairs, and the *blunt hook*, on all which I now proceed to comment, beginning with the consideration of the perforator.

The perforator is designed to be passed through the child's head by a sort of semi-rotatory *boring action*, the same which you would adopt in perforating a piece of board with an awl; the aperture being enlarged afterwards by dilatation, for which purpose the blades, while lying in the opening, are separated from each other. One of the first instruments employed for embryotomic perforations was a pair of *large scissors*, recommended by Smellie, and after all, perhaps, if armed with shoulders, and committed to *cautious and dexterous* hands only, it is one of the best contrivances we can employ, for the cutting edge of the scissors has its advantages. Since the time of Smellie, however, the form of the instrument has been modified, the scissory edge having been removed.

This instrument opens and shuts like scissors, and like them, is generally formed with a double point. But Lowdell has made a considerable improvement in the instrument, and this, too, very simply, by giving it a single point, by means of which it enters the head with more ease and expedition, rendering the operation safer to the mother, and more speedily extinguishing the remains of life in the child. To prevent the blades from entering the cranium too far, about one inch and a quarter from the point they are formed with a check, or shoulder, beyond which they cannot be pushed.

Some of these instruments are made very light and elegant, qualities of which I do not myself approve. A light perforator is apt to bend in the shank, or break; besides, a roughness of appearance well becomes the austere duties which it is designed to discharge. Slight instruments are not thick and strong enough in the shanks, for sometimes you have to open heads which are very firmly ossified; and where that is the case, if the head resists much, there is much danger lest the handles should give way. In choosing a perforator, take care that the joint is very firm, otherwise, when the instrument is in action, disruption and dislocation may occur. It is better, too, that the blades at the joint should not touch each other laterally, in order that no part of the vagina may

be inclosed and injured there. Except the point, all other parts of the instrument should be smooth and rounded. "Thou shalt do no murder," might, perhaps, with great propriety, be engraved on the one blade of the instrument; to Sir Anthony Carlisle I commit the choice of a motto for the other blade from the same decalogue.

The next instrument is the craniotomy forceps, of great use in the operation of embryotomy. The ancient accoucheurs were possessed of an instrument called the rostrum anatis, which was, in effect, the craniotomy forceps. In the mutations of fashion, this instrument became obsolete, being superseded by the crotchet, till it was again introduced by my valued predecessor. After laying open the head, Dr. Haighton was accustomed sometimes to make use of a pair of *stone forceps*, armed with teeth. Dr. Davis has very much improved the ruder instrument of Haighton, not sufficiently powerful in less skilful hands than his own. He has invented a very stout pair of forceps, which has a great number of teeth on one of the blades; these teeth, however, being faulty, because they are too short and delicate, and apt of consequence to bend and wear away under corrosion, becoming thereby unfit to pierce the bones as intended. Corresponding with these dental processes, you have, on the other blade, apertures into which the teeth are received, as in sockets; and thus, when the instrument acts as intended, they pass through the bone, giving you a hold sufficiently secure. This instrument, contrived by Haighton, and much improved by Dr. Davis, has been still further perfected by Mr. Holmes, who has produced the best pair of craniotomy forceps I know of, and which I always use. In his instrument there is no display of elegance, but it is a large, strong, and very powerful implement, not liable, when we are using it, either to bend or break. Of this instrument, the grand perfection lies in the size and strength of the teeth. On one blade there are three large dentiform processes, very like the incisor of a rabbit, if I may be allowed to make such a comparison; and in the other blade there are three cavities in apposition with these, into which they pass, after thoroughly piercing the bones, so that there is no danger lest the forceps should slip away. Besides these chisel or scalpiform teeth, there are several which are smaller, which are designed to give you a hold of the scalp. To me, these smaller teeth appear unnecessary, for if you have a good hold of the bone, the hold of the scalp, not of much importance, will also be secure. The three large chisel teeth constitute, in my opinion, the great excellence of Holmes's forceps.

There is yet a third instrument, generally used on the Continent, and in this country too, for the extraction of the head after perforation, and which, notwithstanding the contrivance of the craniotomy forceps, cannot, perhaps, be rejected from practice altogether, I mean the crotchet. This instrument, of curved shank, furnished with a large handle, and a hooked extremity, broad and bluntly

pointed, is designed to be employed as a blunt hook externally, or within the head, in the way I shall presently explain.

Nor must I omit to mention, while treating of these instruments, another implement, not frequently required, however; the blunt hook, as it is called. Of this instrument I have to remark, that its shank ought to be strong, its handle large, its shorter arm not longer than necessary to give a secure hold of the axilla and arm, or any other part on which it may be applied. Bluntness is another desirable quality, whence its name; a point is useless, and therefore to be condemned.

Our remarks on the different instruments of embryotomy concluded, we will now proceed to consider the operation itself, dividing it for consideration into two varieties, that in which the want of room is inconsiderable, and that variety in which we have to act upon a pelvis contracted and distorted in a high degree; and first of craniotomy in those cases in which the contraction of the pelvis is less considerable.

If the contraction of the pelvis is slight, and craniotomy be required, those who are in the habit of using the long forceps will probably first have made trial of this powerful instrument before they have recourse to the destruction of the child; and, if it so happen that the long forceps are still applied to the head at a time when craniotomy is proposed, it will be better still to leave the instrument on the cranium, as its operation may afterwards tend to facilitate both the operation itself and the subsequent abstraction of the fœtus. In such cases, I would recommend you to close the blades of the forceps as forcibly as may be, so as to torpify the feelings by producing a sort of coma, the handles of the forceps being afterwards tied very firmly. This done, in commencing the operation, you take the perforator in the right hand, and pass two or three fingers of the left hand up to the sagittal suture, feeling the suture, if possible, and in ordinary cases it may be readily felt. Then conducting the instrument along the fingers, at length you reach the sagittal suture, great care being taken not to touch any other part, and by a semi-rotatory motion you very readily enter the cavity of the cranium. The cranium one entered, without the smallest delay, for the sooner the operation is accomplished the better, lay hold of the two handles of the instrument, and draw them apart from each other, so as to enlarge the laceration, a free opening facilitating the operation greatly. In order to prevent the instrument from escaping when the aperture is dilated, you ought to be very careful, on entering the cranium, to press the blades onward to the *shoulders* of the instrument, so as to bring these shoulders into contact with the scalp and cranial bones, when there will be no danger of its becoming displaced. In general (I believe) one laceration will lay the head open to a sufficient extent; if, however, you are not satisfied with the size of the aperture, you may introduce the instrument a second time, at some little distance from the first opening; and in the same way as before,

enlarging by dilatation, you may lay the second opening into the first, forming what is denominated the *crucial laceration*. The great object which you seek here is a free opening into the cranium, and, in using the perforator, of this object you should never be forgetful. The head, then, being laid open in this manner with all practical promptitude, carry your instrument into the brain, and demolish its structure completely, so that if, unhappily, there be any life remaining in the child, all feeling may be destroyed at once. Let the demolition be complete — let the brain be converted into a perfect pulp. Feel what reluctance you may before you begin this terrible operation — the more the better — but when you have once begun proceed promptly, without flinching — it is too late to look back. In demolishing the brain, it is desirable that you should break up the basis as early as practicable, for this part, I suspect, is more immediately connected with vitality. Cases have happened in which the cranium has been opened, and part of its contents have been removed, the child coming into the world alive, to look, as it were, into the face of the operator, and reproach him with his cruel ignorance, or negligence. The very image of these horrors is enough to make the blood curdle. Never lay the head open, unless there be an absolute need for it; but when you must craniotomize, let all your operations be effectually performed.

When in this manner you have laid open the head and pulpified the brain, it next becomes your duty to abstract the fœtus. This you may sometimes accomplish with the long forceps; the instrument, however, being very liable to become displaced in consequence of a collapse of the bones, and this more especially if the resistance be considerable. If, however, the difficulty be small, the fœtal head may be extracted in this manner without much difficulty; but if the long forceps lose their place, the head not descending, you must then have recourse to the craniotomic forceps already described.

Before you introduce this instrument, I would have you ascertain with care what is the precise obstacle that precludes the descent of the head. Generally there is, in these cases, a small distortion of the pelvis; let this distortion, then, be clearly detected; commonly it lies near the symphysis pubis, or the acetabulum. Frequently, however, there is a mere want of room from before backwards, the symphysis pubis approaching the back of the pelvis, no distortion accompanying. Having ascertained the difficulty, slide up the first two fingers of the left hand; and of these two fingers, place one in the cavity of the cranium and the other on the outside; and then adjusting the instrument with these two fingers, you lay one blade within the head, and the other externally, so as to get the cranial bones between the blades. Before closing the instrument examine very carefully, for you should not proceed with haste here, and satisfy yourselves that no portion of the mother is included between the blades. You had

better ask the woman if you occasion pain, for in these easier cases, you will give but little uneasiness if you operate neatly; the absence of pain being a further evidence that you are not including any of the softer parts. Satisfied of this, you then close the blades very firmly, piercing the bones with the dentiform processes of the instrument, so as to render the hold secure. This step of the operation effected, you then draw down, co-operating during the pains, if there be any, as these will be found of powerful co-operation. In drawing, too, it is desirable that the tending of the bearing should lie in a line stretching from the umbilicus to the point of the coccyx and the perineum, (great care being taken not to injure this part,) for, when you are bringing the head through the brim, this line may be considered, partially, as representing the axis of the upper part of the pelvis, and you must direct your efforts accordingly. The ordinary craniotomy forceps will frequently slip away; I should, therefore, recommend you to use those improved by Mr. Holmes; even the best-contrived instrument may slip, bringing along with it the portion of bone to which it is fixed; a grave accident, because the edges and points of this piece of bone, if you are off your guard, may lacerate the passage. When, therefore, you are drawing with the craniotomy forceps, I would further recommend you to lay the fingers of the left hand — all the four — in the vagina, in apposition with the instrument, so that, should the forceps slip, your hand alone may suffer, the woman being protected. For the sake of the patient, and for the sake of your own hand also, I would advise you to abstract with caution, always prompt and in readiness to stop short in your effort, should the instrument or bones seem disposed to give way.

You will now and then find the head lying so high in the pelvis, that it is no easy task to apply the instrument in any way over the bones; or if you do obtain a hold, the hold is marginal and imperfect, and the forceps are apt to slip away. Now, your better practice here, is to have two pair of forceps, and this number I generally carry with me; and applying your first pair somewhat insecurely, you may still draw the head down a part of the way, though you may not be able to extract it altogether. Having accomplished this, you may then take the second pair of forceps, and drawing the bones down with the first instrument, you may bring the bones thoroughly within the gripe of the second pair, obtaining in this manner a firmer hold, which may enable you to act with power and effect. When the second pair of forceps has been applied, the first may be taken away.

In using the craniotomic forceps, all these minute points are well worth your attention: get a secure hold of the head with the instrument, and guard against its detachment by slipping; be prepared for the escape of the instrument, whether alone, or with a portion of the bones; draw down during the pains, in order that you may have a full advantage of the co-operation of the uterus;

and, above all, take care, when you apply the instrument, that you include the parts of the cranium only, and not a part of the mother also — a nicety not always unattended with difficulty, inasmuch as it is not always easy to distinguish what parts are of the child, and what are of the mother, more especially when the head lies high up.

The craniotomy forceps failing, you may endeavour to abstract the head with another instrument of no small power; and this other instrument is the *crotchet*, pretty generally known to accoucheurs. Now this instrument, the crotchet, may be applied as formerly explained, either externally or internally; and the latter being the safer, is, on the whole, the better mode. I cannot designate, or mark out to you, any one particular part of the head, as a bearing point, on which the instrument may be placed; but I may observe, that passing it into the cranial aperture with the right hand, and guiding it with the left, you may move it about till it fastens on some part either of the basis cranii, or of those bones which form the other parts of the receptacle for the brain. When you have in this manner secured a hold with your crotchet, of course there is always a danger lest the instrument should slip away, either alone, or with part of the bones, and therefore you are to pass your fingers into the vagina before you draw, placing the hand so as to receive the point of the instrument if it slip, being continually upon your guard against its slipping, and careful to stop promptly, when you find it disposed to give way. As in using the craniotomy forceps, so here in drawing, let the tendency of your effort be in the axis of the pelvis; ascertain what is the difficulty, if possible, and if there be any uterine pains, take advantage of their co-operation.

In cases where the crotchet does not succeed in withdrawing the bones, there is yet a third expedient to be adopted; and that is, the abstraction of the cranium with the fingers, by means of the scalp and bones. If, as some are, you chance to be strong in the fingers, lay hold of the scalp of skin, which you may find hanging through the pelvis, and by this exert your extractive force. When thus drawn, the scalp, which is sometimes pretty firm, may have the effect of bringing all the bones together; and thus getting them all included within a small compass, you draw down with better success. I have seen an operator succeed in this way, where the craniotomy forceps had been previously tried with little avail. By one or the other of these means, then, by the forceps or the crotchet, or the immediate action of the fingers; and especially where there is not much contraction of the pelvis, the head may generally be abstracted, and this frequently with little difficulty. Of these means, the fingers are the safest; and next to these, the forceps; the crotchet is powerful, but not without its dangers.

In these cases of slighter contraction of the pelvis, I would advise you, as your general practice, always to begin the extraction

directly after you have laid open the head, and thoroughly pulpified the brain. Sometimes, however, you will find, on trial of all these modes of abstraction, that still the head will not descend; now, what is to be done here? Bleed your patient, if in a state of irritation, according to her strength, to the amount of ten or sixteen ounces; give her from thirty to sixty drops, not minims, of the tincture of opium, and let her first repose a little, afterwards taking her pains for a few hours; and, at the end of that time, you may find the head much lower in the pelvis, and, therefore, to be more easily brought away. You are not to despair, in this case, as if the delivery were impracticable. Violence, remember, has no place in scientific midwifery; if you cannot succeed with gentle efforts, wait to see what nature may accomplish. You may the rather wait for the operations of our common preceptress and auxiliary here; because, when the head has been opened, and the brain has been pulpified and discharged, and the bones are become collapsed, in general, a heavy and dangerous pressure on the softer parts of the mother will cease, and delay, therefore, is not likely to give rise to their further contusion and mortification.

After the cranium has passed the pelvis with difficulty, we sometimes meet with no small obstruction to the passage of the shoulders, more especially if the pelvic bones be more distorted and contracted than ordinary, or if the shoulders be unusually broad. This difficulty may be surmounted occasionally, by first laying hold of the remains of the head, and drawing down the shoulders as low as may be, and then, by the action of the fingers, abstracting the arms, a fracture which is of small importance, as from the previous craniotomy the child is utterly dead; and thus, in a manner, the arms come through the outlet of the pelvis before the shoulders descend, the difficulty, from the great size of the shoulders, being overcome. If, however, you cannot succeed in an operation of this kind, then you may take the *blunt hook* (an instrument not often required, though sometimes needful), and grasping the handle with the right hand, while, with the left, you direct it into the axilla, you then, by means of this instrument, draw down the one axilla; afterwards, in like manner, fixing it upon the other, and drawing this away, considerable effort being also sometimes required for this purpose. Should you, however, fail with the blunt hook, the only further effective expedient with which I am acquainted, is the detachment of the arm from the trunk, or the evacuation of the contents of the chest, the blunt hook, or a large perforator, being respectively the instrument best adapted to these operations. In dexterous midwifery, however, it rarely happens that measures of this kind are really required.

When talking of craniotomy, you will hear some practitioners speak of the abstraction of the brain, and for this purpose a sort of scoop has been contrived, an instrument, however, which I have not hitherto mentioned. The truth is, that if you follow the two rules before prescribed — in other words, if you are careful first to make the cranial opening capacious — and secondly, to pulpify the

brain completely, by the craniotomy forceps, or crotchet, (for either of these instruments, the crotchet more especially, may be employed for the purpose,) the brain will, of itself, become discharged at the aperture, and the scoop may be rejected. It is the great glory of British midwifery, that it is, on the whole, simple; and, in general, in obstetrics, the simpler our modes of procedure, the better.

Thus much, then, respecting that variety of craniotomy, which is performed in ordinary cases, where there is only a slighter degree of contraction at the brim. All craniotomic cases, however, be it remembered, are not of this kind. In consultation practice, more especially, you will now and then be called on to operate, where the pelvis is contracted in a very high degree; so that, when the head is laid open, the abstraction may still be attended with no small difficulties. Operating in these cases, in which the pelvis is contracted and distorted in the higher degrees, you must proceed on the general principles, already prescribed, only with some little modification. If it be obvious, as it generally will be in those cases, that you must lay open the head at last, I suppose it will be agreed on all hands, that the operation should be early performed, in order that you yourself may be fresh and unexhausted; in order, also, that your patient may not be exhausted, or otherwise injured, before you begin to operate, so as to be worn out with the unavailing efforts of delivery.

Again, when it is clear you are to lay open the head, you should be careful to open the head very fully, and to pulpify the brain very completely. This is necessary even in ordinary cases, but more especially in those now under consideration, where, unless you have evidently opened the head and fully pulpified the brain, you will not have that complete collapse of the bones, so essential to a ready delivery, for parts of the brain will remain in the cavity of the cranium, and room must, of consequence, be lost. The brain then pulpified thoroughly, and the opening into the cranium being made as capacious as may be, you may then proceed directly to the abstraction of the head, taking advantage of pains if there be any. Should you, however, be unsuccessful in these attempts, then wait for ten or twenty hours if no dangerous symptoms forbid, and under the efforts of the uterus, the remains of the head may be pushed into the inferior parts of the pelvis, more within reach of your extracting instruments.

In all cases, but more especially if there be unusual difficulty, when you are bringing away the head, the position in which you place this part is of no small importance; and happily it is by no means difficult, but rather easy, to place it in the position most convenient for transmission.

After craniotomy, the bulk of the head is considerably reduced, and is chiefly made up of the basis of the cranium with its facial bones, the other bones being collapsed in consequence of the abstraction of the brain. To this condition the head is reduced

when the cranium is laid open, and its contents taken away. Now, in a case of this kind, in which the cranial texture is completely destroyed, you may bring down the basis of the cranium parallel with the plane of the brim of the pelvis; but you may observe, that, in this position, the remains of the head, though small in bulk, still occupy much space in the pelvis. It seems, therefore, that if you bring down the basis of the skull parallel with the plane of the brim of the pelvis, advantage is lost; a position of the head more favourable (and very important it is that this should be recollected at the bed-side) is obtained if we place the basis of the skull parallel with the posterior surface of the symphysis pubis, and then much less room will be occupied by it. Further, when you place the basis of the skull in this manner, parallel with the symphysis pubis, it is not altogether a matter of indifference which part you draw down, as the most depending, whether the face, the ear, or the occiput of the child, all of which may be brought down into the most dependent position, the basis of the cranium still retaining its parallelism with the symphysis pubis. If, for example, you draw down the face as the most depending part, you then, of course, have a simultaneous descent of the neck and occiput; but if the occiput be the part the most dependent, you will then have a combined descent of the face and neck, forming together a mass of no inconsiderable bulk. The descent of the ear produces a sort of intermediate case, into the consideration of which it is unnecessary to enter.

It is obvious that, if the neck and face of the child descend together, the mass transmitted will be larger than that produced by simultaneous descent of the face and occiput, and from all these considerations issues the following rule: when the cranium has been opened, and the brain removed, let the basis be laid against the posterior surface of the symphysis, the head being brought down under a presentation of the face, for in this position the remains of the cranium will occupy the smallest space in their descent. In difficult cases you may facilitate the descent, by separately detaching the bones, as much as may be, before you bring the head away; and if you have been waiting some ten or twelve hours after the operation of craniotomy, you may find the parts softened a little by putrescence, and their connexions loosened, so that a detachment may be easily effected, and with the help of the forceps the bones may be very easily abstracted. Care must be taken not to injure the softer parts, when these bones are taken out.

Such, then, are the nicer points of this dreadful operation; few, indeed, but of great importance. Though craniotomy must be avoided if possible, yet, if early in the labour, it is perfectly evident that you must open the head, the sooner the operation is performed the better. After the cranium has been opened, and the brain has been pulpified, if the head do not come away easily, wait for a few hours — ten or twelve, for example; then resuming your operations, place the basis of the skull parallel with the symphysis pubis, placnig the face below so as to bring forth the head

under a facial presentation; and then, if you can get away the bones separately, remove carefully as many of them as possible; for, in doing this, you not only reduce the bulk of the head, but facilitate greatly the escape of the pulpified brain.

SIGNS INDICATING THE NECESSITY OF CRANIOTOMY.

If it be necessary, with caution, to decide in what cases you are to have recourse to the forceps or lever, it is still more necessary to decide with caution, what are the cases in which you may be justified in having recourse to the perforator; and I advise you always duly to investigate the point before you come to your determinations, so that, upon reflecting afterwards, you may feel perfectly free from compunction and self-reproach.

By some, perhaps, it might be contended, that we are never justified in having recourse to craniotomy, unless the fœtus be already dead; but this opinion is, I conceive, erroneous. I may be permitted to remark, that in British midwifery, the life, nay, the preservation of the patient from the graver lesions of her person, is to be looked upon as paramount to every consideration relating to the fœtus; and when these require the sacrifice, craniotomy becomes justifiable. Before this operation is adopted, however, it must be admitted on all hands, that an overpowering and peremptory necessity, grounded on these conditions, should be clearly established; for I conceive, before the tribunal of reason, this alone can clear the operation from partaking of the nature of murder; and we will, therefore, proceed to the consideration of those indications by which this necessity is supposed to be demonstrated.

By some it may be contended, that if we have made trial of the forceps or lever, provided we have been unable with these instruments to abstract the head, we ought then, without delay, to have recourse to the perforator. To this principle, however, I can by no means accede, for if the accoucheur be prompt in the administration of the embryospastic instruments, he may sometimes find himself unable to abstract the head in the morning, although in the evening, by means of the same instruments, a living fœtus may be brought away — a fact, of which I have myself been an ocular witness in more than one instance. It is clear, therefore, when the tractor or forceps fail you, that the perforator should be had recourse to, provided immediate delivery be necessary.

You may sometimes hear it observed, that the perforator should be used when the pelvis is contracted in a high degree, and that you ought not to use it if the apertures be of full size; nor is the rule to be altogether neglected. If the pelvis be so contracted that delivery, without the perforator, be clearly impracticable, then the sooner you employ the instrument the better; but unless the case be extreme, so that the need of the perforator is obvious

beyond all doubt, to use the perforator, merely because there is a want of room among the bones, would be a most criminal rashness. The truth is, that in those cases in which the pelvis is contracted in slighter degree only, you can seldom safely decide respecting the use of the perforator, from the mere measurement of the pelvis; first, because unless much exercised in these inquiries, you may err in the measure; and, secondly, because if the head be small and soft, and the womb be active, the fœtus may come away unopened, notwithstanding the deficiency of room. On the whole, therefore, although I would not have you neglect to examine the capacity of the pelvis, yet, unless the contraction be extreme, I would recommend you not to rely on this measurement, in deciding whether you ought or not to have recourse to the perforator. In his work upon midwifery, Capuron relates two cases, in one of which the pelvis measured only three inches between the front and back, in the other not more than two inches and a half, the full capacity in a well-formed pelvis being of four inches. Both these women, however, as Capuron relates the story, became the mothers of living children; and, from the whole account, we may draw this useful information—I mean, that we must never rashly condemn the fœtus, merely because the pelvis of the mother is contracted: the fact indeed ought to influence our judgment, but certainly ought not alone to determine it.

Further, you are not justified in laying open the head merely because, in previous labours, the operation has been performed, and that too, repeatedly. Suppose five or six fœtuses have all been destroyed in previous labours, the pelvis being confessedly narrow, a fact of this kind constitutes, no doubt, a presumptive evidence that the operation may be again necessary, but the proof is not decisive; nor are you, therefore, justified in making use of the perforator, unless some stronger reason can be given. Various circumstances, in any given delivery, afterwards may facilitate parturition. The labour may be premature, or, though of full age, the fœtus may be softer, or much smaller than ordinary, and it may yield of consequence to the forceps or tractor, or even to the unassisted efforts of the uterus; so that, on all these accounts, it would be highly criminal to perforate, merely because the operation had been performed repeatedly on the same woman before.

Some practitioners, with laudible humanity, have maintained, that perforation ought not to be performed unless we have proof that the fœtus is dead in utero; and I do believe that, in many instances, it is not necessary to lay the head open till the fœtus have been subjected to so much compression from the action of the uterus that its vitality is become extinct. Unhappily, however, even if we accede to this rule, it will not be found of easy application, as we are not always able to decide, with absolute certainty, whether the child be dead or not. From the symptoms which I shall presently state, we may, indeed, sometimes ascertain the fact with a high degree of probability; but it often happens,

that the child is dead without our knowledge, and frequently, when the fœtus has been pronounced to be dead, it manifests the signs of vigorous life as soon as it has quitted the vagina. Should we, therefore, grant to the speculator, that the indication for the use of the perforator may be taken from the death of the child, we must still maintain that, in practice, the rule is exceedingly defective, inasmuch as it necessarily partakes of all that uncertainty which belongs to those symptoms by which the death of the fœtus is supposed to be indicated. Not to weary you with the critical enumerations of indications for the use of the perforator, of which I do not approve, I will now lay before you those which I employ in my own practice.

Before the perforator is used, I endeavour to be fully satisfied that the security of the life or person of the patient peremptorily requires the delivery; and I consider that the security of the patient demands delivery, with that degree of certainty which makes it our duty to operate, provided the head have made little or no advance, although the woman have been in active labour for six-and-thirty or eighty-and-forty hours after the discharge of the waters; or provided, moreover, however short the labour, the symptoms of danger or damage enumerated in a former lecture, and to be relieved effectually by delivery only, are beginning to make their appearance.

When satisfied that the perforator is necessary, I endeavour further to ascertain that the delivery is not to be accomplished either by the embryospastic instruments or the Cæsarean incisions. If the delivery must at last be effected by the Cæsarean incisions, it must be admitted, on all hands, that craniotomy is unjustifiable, and I shall endeavour, hereafter, to lay down the principles by which we may determine this point. If the delivery may be safely accomplished without our embryotomic operations, by the mere use of the embryospastic instruments — the tractor, I mean, or forceps — then, or course, although the fœtus in these difficulties is frequently still-born after all, to craniotomize would be unjustifiable. The safety and practicability of delivery by the forceps or the tractor, in any given case, must depend, not only on the conditions of the delivery, but the dexterity of the operator; and, perhaps, the only certain method of determination in dubious cases, must be taken from our making the essay — gently, dexterously, resolutely, yet cautiously, and with great care, lest we should lacerate or contuse. Suppose, then, delivery by the Cæsarean incisions to be unnecessary, and by the embryospastic instruments impracticable — suppose, moreover, that the safety of the life or person of the patient demand immediate delivery with that degree of certainty on which, in surgery, it is reasonable to act; — under these conditions, it seems to me, that we have made out a clear need for the perforator, and however revolting the operation may be, craniotomy becomes justifiable. Before you open the head, have a second opinion — this is a good check upon temerity; the former need of the operation, the contraction of the brim of the

pelvis, and the death of the fœtus, may all be allowed to exert some influence over your decision; but, be it remembered, that from these considerations alone, your determination must not in general be taken.

LECTURE XXVII.

INDICATIONS OF THE DEATH OF THE FŒTUS.

When instruments become necessary, the perforator more especially, it is always desirable to know whether the fœtus be alive or not, and we will therefore proceed to remark a little on the diagnostics by which this point is decided.

You will sometimes find in labours, that the cuticle is coming away from the head in large flakes, an occurrence, however, by no means frequent, or if frequent, not, I think, often observed. If you perceive the cuticle separating from the scalp in the same manner as it desquamates from dead bodies in the dissecting room, you may always suspect that the fœtal vitality is extinct. Though the desquamation of the cuticle, however, is a strong presumptive argument in affirmation of the death of the fœtus, it certainly is not demonstrative; for cases have been related, and among the rest, one by Dr. Orme, in which the cuticle has separated, in consequence of cutaneous disease, the children being alive notwithstanding; so rare, however, are these cases, that I should feel disposed in practice to look on them as of no account, were it not that human life is at stake. Again, when the child is dead, I find in general that this may, after a time, be ascertained by the dislocation of the bones of the cranium, and their complete detachment from each other, so that the cranial contexture seems to be thoroughly broken up. In cases of this kind, you feel all the bones at liberty, and floating, as it were, in the mollified brain. Hunter used to compare the head in this condition to a bag of shells. Mere mobility of the bones without displacement, and solution of union, is no proof whatever of death. Children on this evidence declared to be still, have, to my knowledge, begun to cry lustily immediately on entering the world. I repeat it, therefore, to demonstrate death, the bones must be detached and afloat.

By laborious and other labours, it sometimes happens, that the umbilical cord lies within reach of the fingers, descending along with the abdomen in the crural presentation, and, in presentations of the vertex, occasionally hanging down with the head. In these cases, when the cord descends, if its pulsations be distinguishable, we may certainly infer that the fœtus is alive, for this pulsation arises from the beat of the heart; but if the cord be cold, brown, flaccid, and destitute of pulsation, you may then be satisfied that

the fœtal life is extinct. Remember, at the same time, that where the cord comes down, a temporary suspension of the pulsation for a few minutes may arise from syncope, and that such temporary suspension is no certain proof of death; no certain proof of that complete extinction of vitality, which renders resuscitation by the tracheal pipe or warm bath hopeless. By the condition of the cord, death is demonstrated in those cases only in which this part is found to be soft, cold, and brown, or, for half an hour together, totally destitute of pulsation. These, then, are the three principal evidences on which I rely, in endeavouring to ascertain the decease of the fœtus — a desquamation of the cuticle, a complete solution of the connexion between the cranial bones, and, for thirty or forty minutes together, a total cessation of pulsation in the umbilical cord; and of the three indications enumerated, to me it appears that the second will, in practice, be found of greatest value, I mean the total disruption of the osseous structure of the cranium.

Of the death of the fœtus, there are, too, other signs, which must not be passed without notice, although on them but little reliance can be placed. By your patient, you may sometimes be told that the fœtus must be dead; for, "I have not felt it for a day or two." Now, be it remembered always, that the child may not be felt for hours, or days, or even for weeks together, and yet, nevertheless, it may be vigorously alive when born; certainly, so far alive, as to be resuscitated by the tracheal pipe or warm bath. Do not be deceived, therefore, into a notion that the fœtus is dead, merely because it has not been felt spurning or cuffing the uterus. By some it might be supposed that the child is dead, in those cases in which you cannot feel the pulsation in the fontanel. This might be made a very pretty subject for obstetric disputation; but when you are become more experienced in practice, you will not, I think, feel inclined to give much attention to this sign. If a child be prone to hydrocephalic, or affections of the convulsive kind, the pulsations of the fontanels may sometimes after birth be felt more distinctly than the beat of the radial artery; but, in health, even in vigorous children, the cerebral pulsation may not be clearly distinguished, and how can we then, in prudence, venture to infer the death of the fœtus, merely because the pulsation is indistinguishable at a time when the head is lying at the brim of the pelvis? Again; a strong proof of death is taken from the issue of a fœtid discharge from the uterus, and yet you ought not to consider this sign as decisive, for these discharges are now and then observed, when the child is alive. Nor is it a certain proof that the child is dead, when, under the vertex presentation, you find the meconium is making its escape, the discharge being detected by the stain which it imparts to the fingers; for although this discharge, in many cases, arises from death and paralysis of the sphincter, yet, in two vertical presentations, I have observed a discharge of the meconium, though the fœtus was vigorously alive.

If the scalp be *emphysematous*, or the abdomen tympanitic, this is a very strong presumption that the child is dead; and peritoneal tympanitis, easily discovered in crural presentations, is not very uncommon in its occurrence; so that it is not from the emphysema of the scalp, the discharge of the meconium, the fœtid discharges from the uterus, the quiet of the fontanel, or the quiet of the child, but rather from the desquamation of the uterus, the cessation of the pulsation in the umbilical cord, and, above all, from the total breaking up of the bony structure of the cranium, that the death of the fœtus may be most certainly inferred.

If a woman have been repeatedly delivered by the use of the lever, the forceps, or the perforator, the children being still-born, she may sometimes ask you whether there is anything to be done in the way of preventing a repetition of this mournful operation, so as to facilitate her labour, or to preserve the life of some few of her children, or even of a single child? To this interrogatory, you may answer in the affirmative; for there is something very simple, and very effective, which may be attempted, and not without frequent success, and this something consists in the induction of premature delivery; before the woman has reached the nine months, at the end of the fifth, sixth, seventh, or eighth months, for example, or even earlier in gestation. If our object in the induction be simply to facilitate the parturition, by urging the labour when the child is small in its size, flexible, and of easy compression, the sooner we perform the operation the better. But if our object be, as generally, to obtain a living child, then we ought not to induce premature delivery till seven months and a fortnight of the pregnancy are completed; fœtuses born at this age are frequently reared; but fœtuses born before this age of pregnancy more frequently die than survive; their stomach and bowels are too weak to bear the milk; and with gastric, cephalic, or other affections, they are frequently carried off.

The difficulties with which you have to contend, in endeavouring to save children by the induction of premature delivery, are principally the following: when labour occurs before the full term of nine months, not unfrequently the children lie preternaturally; the number of preternatural presentations, in the opinion of some, exceeding the natural. These preternatural presentations are often the cause of still-birth; for if the arm present, or the presentation be of the feet or breech, or of mixed character, the contraction of the pelvis delays the birth of the head and shoulders, and the fœtus perishes in consequence of pressure on the cord, at a time when respiration is prevented, not to dwell upon the risk of fractures of the extremities, or ruptures and dislocation of the neck. Nor is the preternatural presentation the sole, though a principal, difficulty. A woman may be wrong in her reckoning; she may suppose that she is seven months advanced in her pregnancy, when, in truth, she is not advanced beyond the sixth; or, it may be, that she may think her pregnancy is of eight months only, when, in reality, it is

of nine; and the fœtus, of consequence, may be too large to make its way unopened through the pelvis. When, too, labour has been frequently induced prematurely, the uterus sometimes forms a habit of spontaneously expelling the fœtus, and thus labour of itself supervening, before the close of seven months and a fortnight, the fœtus may be so young and feeble, that it has not strength for the rearing.

It seems, therefore, that the induction of premature delivery, as a remedy for contractions at the brim, is not without its disadvantages; for remedies, like ourselves, have their defects as well as excellences; *optimus ille qui minimis urgetur*, but still, with all its faults about it, the practice is of great value; and there are now living in society individuals whose heads have, in this manner, been preserved from the perforator.

CÆSAREAN INCISIONS.

In British practice sometimes, and on the continent more frequently, delivery being impracticable by the natural passages, the abdomen and uterus are both laid open by extensive incision, and the ovum is abstracted through the aperture; the operation being, I conceive, denominated the incisory or Cæsarean, on account of the extensive use of the knife which it requires.

To perform the Cæsarean incisions, as indeed most of the higher operations of surgery, some intrepidity is necessary, and some little share of intellect is required; but, as all the parts of the operation are brought fairly under the eye, their execution is by no means difficult. Before the incisions are made, the bladder ought, by all means, to be evacuated; and it is desirable, too, that the bowels, sometimes loaded in the end of pregnancy, be thoroughly cleared of their contents. Women possessing perhaps a larger share of passive courage than men, we may, I believe, generally trust to their fortitude; and I deem it, therefore, unnecessary to alarm by the use of ligatures, though a steady assistant, of firm nerves, ought to stand on either side, in readiness to secure the patient, should her resolution fail.

Different operators may give a preference to different positions of the body; for myself, I should wish the patient to be quietly transferred to the edge of the bed, to rest there in the recumbent position, with the head and shoulders a little elevated, and the legs lying forth beyond the bedstead, so as to hang upon the floor. The body then being placed in the most commodious position, the surgeon, with a large, sharp-edged scalpel, may make a longitudinal incision of six inches, through the abdominal coverings, in the inferior half of them below the navel — I mean, where there is choice, to the left of the linea alba. This incision should be made on the inner edge of the rectus, the parts divided, in its progress towards the cavity of the peritoneum, being the integuments, the adipose membrane, the sheath of the rectus in front, the flesh of

the muscle, the sheath of the rectus behind, and the membrane which gives a lining to the cavity of the abdomen. These incisions completed, the uterus is brought fully under view, of a dusky rosy tint; and through its substance a further incision of six inches is made, in correspondence with the former; the peritoneum, the muscle, and the membrane which invests the womb internally and secretes the catamenia being the parts which are cut through. By this division of the uterus, the ovum being exposed, the accoucheur lays open the membranes by rupture, and reaching and grasping the feet of the fœtus, he abstracts it by turning, proceeding immediately to withdraw the other fœtuses, should there chance to be a plurality, and concluding this part of the operation with the immediate removal of the secundines. When the muscular fibres of the uterus are divided by the knife, they immediately retract. When the ovum is abstracted, the whole of the uterus collapses, and retreats into the pelvis, the intestines, under the expiratory movements, bursting forth at the opening; and the operator now completes the process, by replacing the viscera, removing the clots, closing the abdominal wound by gastroraphy, and afterwards covering the parts with some light and simple dressing. Suture of the uterus has not been hitherto in general employed. Agreeably to the suggestion of Lizars, the temperature of the apartment should be about 90° of Fahrenheit's thermometer, not many degrees below the temperature of the internal parts of the body.

The operations of Lizars have shown, that extensive divisions of the abdominal coverings are not necessarily fatal. In the hope of unlocking the abdomen for surgical operation, I have myself endeavoured to prove, that extensive divisions of the peritoneum are not, in general, followed by fatal results. A record of the facts and experiments on which this opinion is grounded, you will find in my *Physiological Researches*. Although I would have you avoid an unnecessary division of integument in performing the Cæsarean incisions, I advise you to make them of the full length of six inches, as a shorter aperture would probably give rise to difficulty in the abstraction of the fœtus, without securing to the patient a countervailing advantage.

By some practitioners we have been advised to place the Cæsarean incisions transversely, so that they may stretch between the linea alba and the sides of the abdomen. To omit, however, less weighty objections to this method of operating, I may remark, that transverse incisions must lead the scalpel into the side of the uterus, where the large vessels are seated, whence, after the completion of the operation, a fatal internal hemorrhage is to be apprehended; nor must we forget that, by the transverse operation, the epigastric artery would be divided; so that, on both accounts, the longitudinal incision generally adopted seems, on the whole, to be the better of the two. Under these distortions of the pelvis, which create a need for the Cæsarean incisions, the

uterus usually thrown from its natural bearings, frequently lies so much to the right or left side of the linea alba, that the operator is compelled to place his incisions accordingly. It has been observed, however, that where there is choice, we should rather make our incisions to the left of the linea alba than the right, because, by so doing, we avoid the risk of wounding occasionally the ligamentum rotundum, pervious sometimes, and of hereby perhaps producing a troublesome venous hemorrhagy. The linea alba expanding, in common with the rest of the abdominal covering, in consequence of the enlargement of the uterus, may become dilated to double its orignal width; the breadth, in the living woman, being sometimes very easily ascertained by her making an attempt to rise from the recumbent to the sedentary position; for the muscles at this time becoming as hard as a piece of cartilage, their inner margins, and the interposed space, may be examined without difficulty. In operating upon dogs and rabbits, I have frequently divided the linea alba with impunity. After the operation of paracentesis, the aperture through the linea alba usually heals with facility. Surgeons, however, are not unreasonably averse from tendinous wounds prone to mortification, and we are advised, therefore, not to place our incisions in the centre of the abdomen, but over the rectus muscle, near its inner edge, so as to include the muscular flesh in the wound; and thus bring into co-operation, during the subsequent healing, those active living parts of which the muscle is composed. Remember, then, the breadth of the linea alba; remember, too, the situation of the epigastric artery, and the large capacity of those arteries which lie in the sides of the uterus; and in your anxiety to keep clear of the linea, take care that you do not get so far from the margin of the rectus that you incur the risk of injuring these parts. A pregnancy of nine months, I believe, doubles the breadth of the rectus; in determining the situation of the epigastric, remember this.

Some might think, perhaps, that in removing the fœtus by the Cæsarean incisions, we ought to make the openings above the navel, instead of below. To this opinion, however, I can by no means accede; for, if we make the incisions above the navel, the intestines will protrude more copiously; the region of the placenta will most probably be divided, and, on the abstraction of the ovum, the womb, collapsing into the pelvis, will sink below our reach, disappearing beneath the intestines, which fall over it. Place the incisions, therefore, below the navel; by this collocation you may avoid these impediments.

When closing the abdomen of animals, I have generally passed the suture completely through the abdominal coverings, so as to include the peritoneum; nor have I been led to suspect, that any ill consequences have necessarily resulted from this practice. In operating on the human subject, however, we are advised not to include the peritoneum in the stitches, and though I am not sure

that much danger would result from the suture of this membrane, I deem it safer, in the present state of our knowledge, to observe the precaution recommended.

One observation more, and I conclude this part of our subject: if you intercept the contact between the semen and the rudiments you insure sterility. My reasons for this opinion you will find in the Transactions of the Medico-Chirurgical Society for May, 1819. On the continent, the same woman has been twice subjected to the Cæsarean operation. Mr. Barlow's patient, in this country, recovered and might have become pregnant again. To preclude the possibility, therefore, of a second need for the incisions, before closing the abdomen, the operator, I conceive, ought to remove a portion, say one line, of the fallopian tube, right and left, so as to intercept its calibre — the larger bloodvessels being avoided. Mere divisions of the tube might be sufficient to produce sterility, but the further removal of a portion of the tube appears to be the surer practice: — I recommend this precaution, therefore, as an improvement of the operation.

To the fœtus, the Cæsarean incisions are, it should seem, unattended with danger; though, in more than one-half of the British operations, the children have been abstracted still-born; death, however, being rather attributable to the delay of the operation than to any effects produced by the operation itself. But although, in these cases, the danger to the fœtus is small, if any, it is admitted, on all hands, that the peril to the mother is extreme; and, without staying to declaim on a subject so well fitted for babbling, it may, perhaps, be worth our while to consider, what are the causes from which the danger arises, and what are the means whereby they may be superseded or alleviated. That British surgeons understand, as they ought to do, the use of their hands and fingers, will, I presume, be admitted by all; that they are, further, acquainted with those laws of the injured parts which, understood and brought into operation, constitute the best instruments in the armamentarium, can scarcely be denied; it is remarkable, however, notwithstanding these qualifications of our countrymen, that the success of the continent has greatly exceeded that of our own islands; and as we may not, I think, in candour impute this to superior chirurgical knowledge, we must look to other causes to which this foreign felicity may be ascribed. From the masterly work of a man of great powers, (Dr. Hull of Manchester) it appears, that although but few women in this country have recovered from the operation, yet in those continental operations which have been put upon record, amounting in number to between two and three hundred, more than one-half the women have survived. In England, should an operation fail, it is not very likely to remain concealed; but during the preceding centuries, on the continent, the darkness and smallness of the printing house afforded facilities for silence, of which the unsuccessful operator was very likely to avail himself, even when his intentions were by no means dishonest;

and thus, without reproach to our very able neighbours, it may be presumed, that from the circumstances of society, the failures and the successes of this operation may not have been recorded with equal fidelity; not to add, that some of these operations, so called Cæsarean, have perhaps, after all, been in reality of other nature. Nor is this all. — Should our planet escape some of its former catastrophes, posterity will probably learn with surprise, some thousand years hence, not unmingled with levity, that a large and religious body of their civilised forefathers had been of an opinion, that if one of the children of our great Parent were permitted to perish in utero, without the administration of water and words, in consequence of an original and unexpiated moral taint, derived from our common horticultural ancestor, eternal perdition would very probably be its portion. Happy as *we* are in another and a better system of opinions, *we* are not at all surprised to hear that by many such a notion has been deemed both wholesome and tenable; and some mothers, who might perhaps have been delivered by the natural passages, in this hope of securing to their children the baptismal advantages, have, with constitution on the whole healthy enough, been induced to submit, in preference, to an extraction of the fœtus, early in the labour, by means of the Cæsarean incisions.

Of British midwifery, however, it is a fixed rule not to remove the fœtus by the Cæsarean incisions, provided it may be abstracted by the natural passages; and hence our operations have usually been performed on women of broken constitutions, the subjects of malacosteon, generally, if not always, of itself a fatal disease. An able and resolute surgeon, Mr. Barlow, of Blackburn, had occasion to operate on a woman of vigorous habit, obstructed in consequence of previous fracture of the pelvis; and in this case, with which we have been favoured in his valuable essays, the woman resumed her domestic occupation in the course of a fortnight afterwards. Hence, perhaps, without illiberal derogation from continental merit, the greater success of the operation beyond our seas may rather be attributed to the silence of the press, and to the misnomer of the operation; it may be, also, to the better condition of the patient, on whom the operation has been performed, than to any superior surgical skill exerted in its performance.

The dangers which attend the Cæsarean incisions, so frequently destructive to those who are compelled to submit to them, are of various kinds, and may well deserve a little consideration from us. First it may be observed, that the operation being alarming, the surgeon feels averse to urge its adoption, and the patient herself, terrified perhaps, can scarcely give her unforced consent till the collapse of her strength, and the protraction of the labour, convince her that there is no other hope. On both these accounts, the first especially, it frequently happens that contusion and exhaustion precede the operation; the fœtus, too, being already dead, in consequence of the pressure to which it is subjected under the action

of the uterus; in a word, such irreparable mischief is sometimes done before the operation can be adopted, that if, by a fiat, as it were, the fœtus might be extricated, without incision, from the receptacle where it is incarcerated, it would then be too late to preserve either the mother or her offspring. Now this source of danger is the rather deserving of our consideration, because, by early operation, it may in good measure be avoided; and, I think, we may lay it down as an axiom in operations of this kind, that if to be performed at all, they ought to be executed without needless delay, as soon as the cordial assent of the patient may be obtained.

If in the full flesh and petulance of health, you were to receive a severe blow upon the abdomen, or if, from other cause, the stomach or intestines were to become ruptured, with falling countenance and failing limbs, you would immediately take your stand in silence upon the brink of the grave, and there begin to consider of what clay you are made. Thus it is, that among the dangers of the Cæsarean operation, we must not omit to enumerate the narcotic effects resulting from injuries inflicted; two wounds, each of six inches, which it is necessary to make, at least in the ordinary modes of operating. By Sir Charles Bell we have been advised to make a small opening into the uterine cavity, afterwards dilating the orifice by the action of the fingers, in the same manner as the os uteri is sometimes laid open, when it becomes necessary to remove the ovum from the womb. This dilatation, as Bell justly observes, is likely to prove of more easy accomplishment, because the substance of the uterus is, perhaps, naturally of a somewhat obsequious and yielding kind, and it is not altogether impossible that this method of procedure may be found desirable, not only in those cases in which the placenta chances to cohere to that part of the womb which corresponds with the abdominal incision, but in every instance in which the Cæsarean delivery is requisite. This proposal, however, requires reconsideration; contusions and lacerations might, not without reason, be apprehended. By dilating in this manner, we should diminish the extent of the uterine incision. *A priori* it seems probable that this would be an advantage; but in medicine nothing is sure.

For large bleedings to occur in consequence of the Cæsarean operation, it is not common; yet when the placenta has been deposited on that part of the uterus which is divided by the knife, as the uterine vessels are always very capacious in the region of the afterbirth, much internal bleeding may be expected. To meet this danger, Bell has proposed dilatation in place of uterine incision; and I may observe here, by the way, that if with proper ligatures we could remove the womb altogether, in the manner already mentioned, this risk of internal bleeding would be cleared away at once.

Much of the danger of the Cæsarean incisions must, I fear, be ascribed to a cause, over which, in the present state of our know-

ledge, we have but little control; I mean the cachexy of malacosteon. Mr. Barlow's patient, of fractured pelvis and healthy habit, recovered. The Cæsarean deliveries of the continent, performed on healthier constitutions than those of our own patients, have been attended, it may be, with corresponding success; but the British practitioner, pertinacious of his rule, using the incisory delivery in those cases only where, by the natural passages, delivery is impracticable, in general finds himself compelled to operate in cases already desperate from malacosteon, as, unless there be fracture, it rarely happens that the pelvis, from any other cause than malacosteon, is contracted in that degree which alone justifies the operation. After medicine and surgery have accomplished so much, however, I would fain persuade myself that they will not ultimately fail us here; and there is reason to hope that in the further progress of our knowledge, this cause of danger, in the operation, may admit of alleviation.

When gentlemen are asked what is the cause of death after the Cæsarean delivery, they not unfrequently tell us, that it is a diffused peritonitis; and when I first turned my attention to the profession, I used formerly to hear, that, like wild-fire, an inflammation commencing in a spot of the peritoneum, might be expected to spread rapidly over its whole surface. When we have not the good sense and prudence to close our eyes and ears to what is passing round us — experience, troublesome and presumptuous experience, has sometimes the insolence to contradict, without qualification, our most favourite opinions; and I suspect that something of this kind will be found to occur in the cases under consideration. That the risk of diffused peritonitis, from local injuries of the peritoneum, has been greatly exaggerated, I have endeavoured to show, in a small paper, printed in the *Physiological Researches*, and from the adverse opinions of my contemporaries on this point, I confidently appeal to posterity. In some future age, when our hearts and their petty passions are quiet in the dust, this opinion, whether right or wrong, of great importance to our race in all future ages, will probably be decided by accumulated experience — may I not add, in the affirmative? — to this dijudication, I think it better to commit it.

Knowing but little, with certainty, respecting the Cæsarean incisions, I do not venture to decide whether this peritonitis is, or not, a frequent cause of death; but I may add, that all my analogous experience is decidedly opposed to this doctrine, nor do I think it ought to be received into your medical creed, without further corroboration. In philosophy, doubt is no crime, and in order to place yourselves on the safe side, after abdominal operations, sedulously watch for the expected peritonitis; and should it occur, let it be treated upon ordinary principles.

Mr. Lizars, recollecting that peritoneal inflammation, when the abdomen is laid open, may be produced by the coldness of the atmosphere, with laudable forethought, took the precaution of raising

the temperature of the apartment in which he performed his operations, to an elevation ranging between 80° and 90° of Fahrenheit's thermometer; and this practice, to the best of my judgment, seems well deserving of imitation. That the oxygen of the atmosphere may operate as a peritonitic stimulus, was, I think, maintained by Monro; but this opinion, though plausible, has not been satisfactorily established.

Dr. Haighton, inflating through the tunica vaginalis the peritoneal sac of the dog, so as to produce an artificial tympanitis, found, in more than one experiment, that the air was gradually absorbed, not one symptom of peritonitis becoming manifest. Should it be proved hereafter, that the access of air contributes, in any important degree, to augment the risk of the Cæsarean delivery, it would be by no means difficult to disembarrass it of this danger, for, with a proper apparatus, we might avail ourselves of a proposition made by a gentleman, whose name is unknown to me, and operate beneath the surface of water, the heat of which might be brought to correspond with that of the internal part of the body.

In speculative moments I have sometimes felt inclined to persuade myself, that the dangers of the Cæsarean operation might, perhaps, be considerably diminished by the total removal of the uterus. Rabbits are tender animals, and, bearing many fœtuses, have wombs, after delivery, of great proportion and bulk, indeed nearly large enough to fill the hollow of the hand. — If the Cæsarean operation be performed on a rabbit in the ordinary way, unless I am much mistaken, it will be found that the animal generally perishes in consequence. But in four rabbits, recently delivered, I made an opening above the symphysis pubis; and raising the wombs from the abdomen, I elevated them above the aperture, the animal lying in the recumbent position, stretched out at full length. This accomplished, I took a ligature, with a needle on its centre, and carrying the point from behind forwards, I passed it completely through the vagina, afterwards cutting the needle away in this manner, so as to leave two strong ligatures hanging forth from the aperture. Having applied my ligatures, I tied one on the right side, and the other on the left, respectively, over the fallopian tube, drawing the threads very firmly, so as completely to cut off all communication with the vagina; and this part of the operation carefully performed, I took a knife and completely removed the wombs, cutting, for this purpose, very close upon the ligatures, afterwards replacing the parts; this done, after closing the abdominal wound by suture, I drew forward the ligatures through the wound, till I brought the raw surface, left by the removal of the wombs, in contact with the abdominal incision internally. By means of the ligature, the wound of the vagina, and adjacent parts, which must otherwise have been of great extent, being drawn together into a very narrow compass, became not broader than a sixpence, and I trusted that this might promptly contract adhesion with the inner surface of

the abdomen. Beyond my hopes the operation succeeded; of the four rabbits three recovered, the fourth dying in consequence of the ligatures slipping from their place. Experiments of this kind, made upon different animals, are much wanted; for the importance of the subject renders multiplication and variety desirable here. Let us think maturely upon facts like these. In performing the Cæsarean delivery on the human body, perhaps this method of operating may hereafter prove an eminent and valuable improvement. Beware, however, of temerity — see what may be done on the dead body — gather facts — form inference — write little — meditate much. Perhaps you may do something for obstetric surgery here. Let it be remembered, that in securing the vagina, and removing the uterus, we are substituting a wound, well secured and of smaller extent, for one that is larger and not secured by ligature at all. Some months after delivery, when shrunk in bulk, the inverted uterus has been repeatedly extirpated with success — once by myself. Webber, of Yarmouth, successfully extirpated an inverted puerperal uterus, within a few days after delivery. All this is encouraging. Beware of rashness — beware of pusillanimity — think.

LECTURE XXVIII.

MEANS OF SUPERSEDING THE CÆSAREAN OPERATION.

The Cæsarean incisions are attended with much danger, and hence it has been asked, whether we have not the means of superseding it? May not an operation, so formidable in its nature, be rendered altogether unnecessary by measures of a different kind?

If the pelvis be contracted in so high a degree, that parturition, by the natural passages, is impossible, I need scarcely tell you, that the shortest way to avoid the necessity of the operation, would be by abstinence altogether from intercourse with the other sex. The most solid resolution, however, may sometimes thaw; and when a woman is married, she may be placed under those circumstances, in which it is not very easy to adhere to this advice; her life perhaps falling a sacrifice to her neglect. My friend, Dr. Hull, of Manchester, once transmitted me the case of a woman whose pelvis was contracted in a high degree; she knew her situation, remained in a state of abstinence for many years, but afterwards became pregnant, and died. Now is there any other mode in which, when the obstruction of the pelvis is insuperable, the formation of a fœtus may be prevented? In my opinion there is: for if a woman were in that condition, in which delivery could not take place by the natural passage, provided she distrusted the cir-

cumstances in which she was placed, I would advise an incision of an inch in length in the linea alba above the symphysis pubis; I would advise further, that the fallopian tube on either side should be drawn up to this aperture; and, lastly, I would advise, that a portion of the tube should be removed, an operation easily performed, when the woman would, for ever afterward, be sterile: all this, after due consideration, circumstances not forbidding. But the abdominal incision — that is bad:— true; but the Cæsarean incision, that is worse. Is not that true also?

If a woman, in the earlier months of pregnancy, is known to have a pelvis contracted in a high degree, is there nothing which you may then do to prevent an ultimate need of the Cæsarean operation? Why, yes; abortive medicines might, in this case, be thought of; or these failing or rejected, if you could feel the os uteri, you might introduce a female sound, or any other instrument of that kind; and passing this sound into the uterine cavity, you might completely break up the structure of the ovum, so as to prevent the progress of generation. In doing this, there would always be a risk of hemorrhage; but where you are endeavouring to avoid the necessity of the Cæsarean incisions, this risk would be justifiable. The substitution of the smaller evil for the greater, is frequently the principle of the healing art. But what if the os uteri be inaccessible, is there, in such case, any other expedient to which we may have recourse? In a case like this, were my opinion consulted, I should incline to reply — as a substitute for the Cæsarean operation, let an incision be made as before above the symphysis pubis, then let some small instrument, a trocar and canula, be carried into the cavity of the uterus; let this instrument be sufficiently stiff to enter the cavity, and retain its form there under pressure; and then, let it be resolutely moved about in the uterus, so as to break up completely the texture of the ovum. The whole instrument need not be much thicker than a bell-wire; the process is allied to that of acupuncture: the point of the trocar, on entering the uterus, should be withdrawn within the canula; a finger should be placed on the uterus, so as to guide the instrument, and guard against injury of the intestines or the bladder. Scribblers had better content themselves with sneering at the operation — surgeons had better perform it. To produce future sterility, the tubes might be rendered impervious.

But suppose that gestation has reached the end of nine months, is there then nothing which may be done to supersede the Cæsarean operation? If the patient can be delivered by having recourse to perforation, by all means this should be adopted. Observe, it is a rule — an axiom in British midwifery, that we are never to deliver by the Cæsarean operation, provided we may, in any way, deliver by the natural passages. Difficult and dangerous as the delivery is, in some cases, when effected by the natural passages, I feel persuaded that women might sometimes be more safely and more easily delivered by the Cæsarean incisions than

by the passages of the pelvis; but if, acting on this persuasion, we were once to establish a principle, that the Cæsarean delivery may be used as a substitute for delivery by the perforator, there would, I fear, be too many cases in which it would be needlessly adopted, and men would now and then, not to say frequently, perform this operation under circumstances in which it ought never to have been dreamed of. Where, therefore, the embryotomic delivery is practicable, let this be preferred. But you may reasonably ask, how are we, in any case, to decide, at the bed-side, whether delivery be practicable or not? To this query I wish it were in my power to return a satisfactory reply. Much must depend on the dexterity, and other qualities, of the operator; for one man may be able to succeed in the delivery, when another may not. Much again must depend upon the instruments which we employ; to the operative midwifery of Dr. Davis, I must refer you for an exposition of these different contrivances, together with a description of his own inventions and improvements. Much must depend, too, upon the size of the aperture; and it seems, from the researches of Hull and Burns, that the smallest aperture through which a full-grown fœtus may be abstracted by the embryotomic operations, under circumstances the most advantageous, must be, at least, three inches in its length, and an inch and three-quarters in its breadth. To justify embryotomy, therefore, there must be a clear passage through the pelvis, of these diameters at the least. From the consideration of all these particulars must emanate the determination, whether you will, or not, embryotomize. Before you come to a decision, procure the best advice within reach. With these suggestions, I must commit you to the waters; I wish the compass were less perplexing in its indications; but happily, such difficulties are rare.

SECTION OF THE SYMPHYSIS PUBIS.

With a view of enlarging the capacity of the pelvis, in cases of labour more or less laborious, it has been proposed to make a division of the symphysis pubis, an operation which is easily performed. In executing this operation, the surgeon or accoucheur outs down upon the joint, and carries the scalpel between the extremities of the ossa innominata, so as completely to detach from each other, taking care that no injury be inflicted upon the urethra or bladder.

The simple division of the symphysis pubis, however, enlarges the pelvis but little; and, therefore, in order to secure the full benefit of the operation, it is proposed further, that the surgeon should separate the ossa innominata from each other, to the extent of one, two, perhaps I may say of three or four inches. It seems to be ascertained pretty clearly, by observation made on the continent, that in the mere division of the symphysis, pain, not very intense, and no incurable injuries of the part are to be expected;

but if the joint be not merely divided, and if, moreover, the bones be separated from each other to the extent of two or three inches, then, in consequence of the injury done to the sacro-iliac synchondrosis, and the lesion of the sciatic nerves, and the straining of the softer viscera, which are connected with the pelvis, the operation becomes one of considerable pain, and is, perhaps, scarcely less dangerous than the Cæsarean incisions themselves, even in the present condition of that mode of delivery.

The section of the symphysis pubis was proposed originally as a substitute for the use of the perforator and the Cæsarean operations. There seems, however, to be no reasonable doubt, that as a substitute for the Cæsarean incisions, this operation is exceedingly inadequate; for the pelvis, being distorted in a high degree, if you were not merely to divide the symphysis pubis, but to separate the bones to the extent of two or three inches from each other, you would have a great deal of difficulty in getting away the child; very probably you would be compelled to lay open the head, and at the same time you would inflict great injury on the pelvis, and the softer parts generally, more especially the bladder, so that I conceive the operation would be as dangerous and painful to the mother, and far more dangerous to the child, than the Cæsarean delivery itself. Add to this, the difficulty of performing the operation at all under the higher distortion of the pelvis.

But although the operation be not a substitute for the Cæsarean, some may think, that in many cases, the section of the symphysis might supersede the necessity of the perforator, and this I believe to be true. Generally, where there is a narrowing of the pelvis requiring the use of the tractor, forceps, or perforator, the contraction lies between the promontory of the sacrum and the symphysis. There is a want of room between front and back, which a division of the symphysis pubis is calculated in a measure to remove. In common and ordinary contraction of the pelvis, it may then be said, why is not the section of the symphysis pubis substituted for the operation of embryotomy? For this valid reason, because it is an axiom in British midwifery to sacrifice the child to the safety of the mother, and, in these cases, without injury to the parent, the child may be brought away by laying open the head. Remember too, what has been stated already, that in narrowings of the brim, the fœtus may often be saved with little risk to the mother, by the introduction of delivery in the seventh or eighth months. On both these accounts, therefore, because we may deliver by the perforator, and because, too, we may altogether supersede the need of this instrument by the induction of premature delivery; the division of the symphysis pubis is unjustifiable as a general practice, when the pelvis is slightly contracted. Not to add to these objections, that if we were to allow of the division of the symphysis, in those cases where there is merely a narrowing of the pelvis between the front and the back, such is the present imperfection of obstetric diagnostics in general, that there would

be many cases in which it could be performed, where it was not at all necessary.

VARIETIES OF LABORIOUS PARTURITION.

The laborious labours which give rise to the more formidable difficulties during parturition, may be divided into three species or varieties; those labours, I mean, in which the difficulty arises from a deficiency of room between the bones, and those in which the difficulty is produced by an unfavourable position of the fœtus, and more especially of the cranium; not to add, that we sometimes meet with cases in which the difficulty may be ascribed to these causes mixed.

And first, then, with respect to the laborious labours resulting from an unfavourable position of the cranium. Where a labour proceeds naturally, the presentation is of the vertex, the face in the beginning of the delivery lying towards the one, and the occiput towards the other side; but as parturition advances, the head descends, and the face takes place in the hollow of the sacrum, and the occiput under the arch of the pubes, and the sagittal suture lies along the perineum, and thus the head emerges. It is not always, however, that the fœtal head, in passing, assumes these favourable positions; for sometimes when the presentation is vertical, the face is lying forwards throughout the labour; and sometimes, instead of a vertex presentation, we have a presentation of the forehead, or the face; difficulties being in this way produced. Thus, then, it appears, that there are three varieties of laborious labour produced by unfavourable positions of the fœtal head; that in which the vertex presenting the face lies forward on the symphysis pubis all through the labour; that variety again in which the face is lying over the centre of the pelvis; and, lastly, that position of the head, not without its difficulties, though less important than the former, in which the presentation, instead of being vertical, is frontal.

When it is found, by examination, that the child's head is lying unfavourably for transmission, an accident by no means very uncommon in its occurrence, the accoucheur begins to consider what steps become proper, in order to facilitate the delivery. Now, there seem to be four different ways in which the difficulty may be alleviated; by turning I mean, by rectification of the position of the head, by the use of instruments, and by the natural efforts. Here I wish you to understand clearly at the outset, that when the child is lying unfavourably, it does not, therefore, necessarily follow, that you must immediately have recourse to artificial means of delivery; for, under presentations of the face or forehead, or in vertical presentations, with the face lying forward on the symphysis pubis, by the mere efforts of the uterus, if the pelvis be large and the head small, the child will not unfrequently be expelled. It sometimes happens that the natural efforts fail us,

more especially if the pelvis be contracted or the head large, and, in such cases, we may be compelled to have recourse to some of those instruments which I described in a former lecture, — the tractor or forceps being first tried, and these failing, the perforator.

By some it has been observed, that where the child lies unfavourably, it may very readily be brought away by the operation of turning. Now, in some cases, as, for instance, where the pelvis is large, the softer parts lax, and the hand of the accoucheur dexterous, so that the feet may be seized without difficulty, the operation of turning might, perhaps, be desirable. I must entreat you, however, to look upon this method of delivery turning as an exception to the general rule; for although now and then, perhaps, the child may with advantage be withdrawn by the feet, when the head lies unfavourably, yet, as a general practice, turning is improper, because it requires the introduction of the hand into the uterus — because that operation should never be performed without there exist an absolute need for it — and because, by the natural efforts, or the use of instruments, abstraction of the child may be very generally accomplished. The more I see of midwifery, the more I feel the necessity of evading the operation of turning, wherever to avoid it is practicable.

In some cases, again, where the head is lying unfavourably, its position may be rectified. The pelvis is large, the parts are lax, the hand may be easily introduced, and, with the action of the hand, the position of the head may be altered. Suppose, for example, the child present by the face, you may insinuate the hand into the pelvis without violence, and bring down the vertex. Suppose, again, I make an examination, and, discovering a frontal presentation, I pass my finger over the occiput; by the mere action of the finger, or by the play of the lever, I may, in this manner, rectify the presentation of the cranium. Nevertheless, though this rectification is, in itself, highly desirable, yet, as a general practice in these cases, it is scarcely proper; for it cannot be easily accomplished without carrying the hand along the vagina, and some little way into the uterus, and, in my opinion, the risk of rupture constitutes a valid objection to this method of operation. To an adjustment of the head by the lever I have less objection, and this may be sometimes accomplished.

Instead of rectifying or turning, therefore, in these cases of unfavourable position, unless circumstances are highly favourable, the more wholesome practice is, either to commit the woman to the natural efforts, or to have recourse to the lever, forceps, or perforator, according to the nature of the emergency.

But here, perhaps, you may ask, how are we to decide whether, in any given case, we ought to resort to the employment of instruments, or to confide in the natural powers of the system? Let me remind you, then, of the rule which has been already so often prescribed; if the woman have not been in strong labour for

four-and-twenty hours, and if no dangerous symptoms are apparent, you are not to interfere ; but if dangerous symptoms are manifesting themselves, referable to the prolongation of the delivery, or, if the woman have been in strong labour for four-and-twenty hours, the head making little or no progress, then the embryospastic instruments become justifiable. Further, if the embryospastic instruments have been fairly tried without success, and if dangerous symptoms are manifest, or if the woman have been in labour for six-and-thirty or eight-and-forty hours, the head not descending — notwithstanding the dreadful nature of the operation, you are justified in embryotomizing.

Face presentations may, sometimes, be rectified by the fingers, or the tractor. Forehead presentations may spontaneously become facial, or vertical; by the fingers, or the tractor, rectification may be accomplished. The face, when lying on the symphysis pubis, may be, in three different ways, thrown into the side of the pelvis: by grasping the cranium, when above the brim ; by the action of the short forceps, when below the brim ; or, when the head is in the cavity, by making pressure during pain, with two fingers, placed on the side of the cranium near the face, the face being carried, by little and little, first into the side of the pelvis, and then into the hollow of the sacrum behind.

LABORIOUS LABOURS FROM DEFICIENCY OF ROOM IN THE PELVIS.

In the preliminary lectures, I took occasion to observe to you, that from fractures, mollities ossium, or rickets, more or less of distortion and contraction of the pelvis may be produced ; and in a view to practice, we may divide these distortions into two kinds, namely, those of slighter degree, and which are more frequent in their occurrence, and those contractions in which the coarctation is very considerable.

Contractions of the pelvis, in the *higher degrees*, are divisible into two varieties, — the *elliptical* and *angular*. For a description of these two varieties, I must refer to my former observations on the deviations from the standard pelvis ; for these greater distortions are so rare, in ordinary practice, that I deem it unnecessary to treat respecting them again. When you meet with the *slighter* contractions of the pelvis, (in their occurrence not uncommon,) these contractions may lie in any part of it — brim, cavity, or outlet ; but, in that degree which gives rise to laborious labours, they are most frequently met with at the brim, between the front and back of the pelvis, interposed sometimes between the promontory of the sacrum and the symphysis pubis ; and sometimes between the promontory of the sacrum and acetabulum.

By different practitioners and operators, those contractions of the pelvis, in a slighter degree, may be differently ascertained ; my own method, I formerly explained to you. If a woman

have had a number of children with difficulty, all still-born, for example, or all requiring the use of instruments; if, on making examination, you feel the promontory of the sacrum with unusual facility; if your patient have been in labour for a length of time, the water being discharged, and the parts relaxed, and the head not descending; if the cranium, on examination, be found to be intumescent, the margin of the one parietal bone lying over the margin of the other, you may then be pretty well satisfied that the pelvis is too small. By the difficulty of previous labours; by the unusual facility with which the promontory may be felt; by the failure of the descent of the cranium after strong efforts; and by the swelling of the scalp, and the over-lapping of the parietal bones, coarctations may, in general, be detected, without the help of pelvimeters, though these instruments are not to be despised.

The laborious labours, which thus result from deficiency of room among the bones of the pelvis, are usually divided, in my own practice, into *three* varieties; the first consisting of those cases in which the pelvis is so highly contracted and distorted, that the head does not descend into the pelvis at all; the second, comprising those more frequent cases, in which the head comes down among the bones of the pelvis, and is there incarcerated, so as neither to advance nor recede; the third, comprehending those cases which are of all the most common, and where there is just that degree of contraction, which prevents the descent of the head into the pelvis, the cranium dipping down but a little way within the superior aperture.

You may be in practice for a length of time without meeting with a single instance of the first variety of laborious labour; namely, that case in which you have the highest degree of contraction, so that the head cannot enter the pelvis at all; now and then, however, such cases must occur, and one or two have fallen under my own notice. In the extremer difficulties, the pelvis may be so much contracted, that even the os uteri cannot be reached by the finger. Should it fall to your lot to operate in laborious labours of this kind, in order that you may decide rightly, I would advise you, by all means, to procure the best advice in the neighbourhood. Now, should it appear on consultation, that delivery by the natural passages is practicable, and that the Cæsarean delivery is required, in accordance with principles already explained, it is obvious, that the sooner the operation is performed the better; for where it is performed early, there is a fairer chance of saving the child, and for the woman herself there are better hopes of recovery.

In those cases of higher distortion, provided embryotomy be thought of, and the child is to be abstracted by the use of the perforator, adverse as I am to an operation so dreadful, I must still maintain, that the sooner we perforate the better; nay, in the very commencement of the labour, if it be perfectly obvious that em-

bryotomy must at last be adopted, the operation becomes justifiable. By embryotomizing early, you secure the advantage of operating while you are yourselves fresh, and not exhausted from long attendance, the woman herself being in full spirits and vigour; besides which, you have it in your power to leave the head in the pelvis for hours after it has been laid open by the perforator, so that it softens and putrefies, and readily separates into different pieces; a condition which materially facilitates the delivery.

But here it may be asked, "In these cases of extreme difficulty, how is it we are to decide whether the Cæsarean operation or the operation of embryotomy should have the preference, for the two practices are very different?" Recollect that I have already met this interrogatory, and to these remarks, comprised in the preceding lecture, I must refer you.

There is yet a second variety of laborious labours which you must now and then meet with in your practice, I mean that variety in which the head, pushed down among the bones of the pelvis, becomes impacted there, so as to constitute that kind of case which is familiarly denominated the *locked* head. In these cases where the head is incarcerated, great danger arises in consequence of the strong and permanent pressure which it makes on the softer parts, and contusions, inflammations, suppurations, and sloughings of the mother, not to mention the death of the child, may all of them be the result. Here, too, I may notice especially, that owing to this pressure on the pelvis in front, the bladder may be injured, great accumulations and disruption ensuing. Under these accumulations of urine, even where no rupture occurs, acute inflammation, or chronic disease, may be the result, and the patient may be irrevocably injured, or perish in consequence. Left to themselves, therefore, I look upon these incarcerations as properly ranging among the most dangerous deliveries with which we have to contend, and yet, (though dangerous,) when thoroughly understood, they may be managed with perfect facility.

If you find the head among the bones of the pelvis, and firmly impacted there, you will be led to consider what are the steps to be taken, in order to render the delivery secure. Now, in cases of this kind, women are sometimes delivered by the natural efforts, and sometimes by the operation of the tractor, forceps, or perforator; so that it comes to be a case of consideration whether we ought to have recourse to the use of the instruments, or whether we ought to rely upon the natural efforts? In deciding this question, I should myself be guided principally by that general rule, or canon, which I have already so often prescribed; and if the woman had not been in labour for four-and-twenty hours, and if no dangerous symptoms were manifesting themselves, I should then commit her to the natural efforts — for a meddlesome midwifery is bad; but if, on the other hand, I found that dangerous symptoms were appearing, or, independently of these symptoms, if the patient had been four-and-twenty hours in strong labour, the

head making no progress, I should then make trial of my tractor and forceps; if, lastly, these instruments failed, or if dangerous symptoms were appearing, or if, independently of these symptoms, the patient had been in labour six-and-thirty or eight-and-forty hours, I should then deem myself justified in having recourse to the perforator.

There are some practitioners, who are guided by a very different principle, too valuable to be neglected; I mean the degree of compression which the head is making on the softer parts; and if the head is among the bones, and if, upon examination, it appears that it is very firmly locked there, so that the finger may not be insinuated between the cranium and the symphysis pubis, a prompt delivery is recommended; but, on the other hand, if, on examination, it is obvious that the fingers, though not without difficulty, may be passed between the bones and the cranium, they wait for two, four, or six hours, a longer or shorter term, according to the degree of pressure. Now, I could wish this rule to operate influentially upon your practice, though you may still adhere, in the main, to the general maxim prescribed. If you find that the head is but loosely incarcerated, you may wait with more confidence; but if it so happen, that the head is more firmly impacted between the front and back of the pelvis, you must watch more vigilantly for the symptoms indicative of contusion; and you must promptly have recourse to delivery, as soon as the first marks of injury appear. There is, I suspect, little ground for apprehension while the pulse remains below 100; a pulse more frequent, though not necessarily dangerous, ought, in all cases, to awaken and alarm. Beware of overlooking the indications of injury from compression; beware of delaying the delivery too long.

There is yet a third variety of laborious labour, arising from want of room, of all others the most common in its occurrence, and which requires some little dexterity in its management; the case I mean in which you have a slight narrowing of the brim, and where the head is prevented from thoroughly entering the cavity, being pushed a little way only into the superior aperture. In deliveries of this kind, it not unfrequently happens, that the child is expelled by the natural efforts, notwithstanding the coaretation, and therefore these efforts ought to be fairly tried; for it does not follow, because you have a narrow pelvis, that you are officiously to interfere with instruments without further consideration. But it not unfrequently happens, when the natural efforts are fully and fairly tried, that these efforts are inadequate to the expulsion of the fœtus, and in such cases the tractor or forceps become necessary, or these failing, the perforator.

In these cases, by some practitioners, turning is recommended —a practice which I must reprobate in a decided manner. It is true, that where there is a narrowing at the brim of the pelvis, a skilful operator might, now and then, introduce his hand, and bring away the fœtus by this undesirable operation; but to me,

as a general practice, it seems to be highly improper; first, because in performing it, you must carry your hand into the uterus, an operation always to be deprecated; and, secondly, because when you have turned and brought down the fœtus, as to its limbs and trunk, the abstraction of the head and shoulders must still be attended with difficulty, for the narrowing of the brim remains, and by endeavouring to extract the cranium in this manner, you may detach the head from the body: — turning, therefore, I cannot approve. In narrowings at the brim, it is better, as a general practice, either to suffer the woman to be delivered by the natural efforts, or to have recourse to the instruments already enumerated — the tractor, forceps, or perforator.

Again, it may be asked, granting that these two modes of delivery are to be preferred, how are we to decide whether we ought to commit the delivery to the natural efforts, or have recourse to the embryospastic instruments? To this, as to many other emergencies, the general rule will apply; and, if the woman have not been in labour for twenty-four hours, and if no dangerous symptoms are appearing, it is better not to interfere; but if, on the other hand, the woman have been in labour for twenty-four hours, or if dangerous symptoms are manifesting themselves — the pulse rising, the bladder closing, inflammation of the abdomen appearing — then we may, properly, have recourse to the lever or the forceps; and further, if these instruments fail, or if dangerous symptoms appear, or, independently of any dangerous symptoms, if the woman have been six-and-thirty, or, at any rate, eight-and-forty hours in labour, we are again justified, though unwillingly, in having recourse to the perforator.

What I stated to you in a former lecture is well worth remarking here, namely, that in those instances where you have laborious labour, from the narrowing of the brim, the head will sometimes mould itself, and thus come away. In the morning you apply your forceps, but cannot extract the cranium. No dangerous symptoms manifesting themselves, you wait till evening, and then try the forceps again; and now the head moulded by compression and the pains, so as to adapt it to the passage, on this second application of the forceps, a living fœtus is abstracted.

LECTURE XXIX.

LABORIOUS LABOURS FROM RIGIDITY.

Laborious labours are sometimes produced by a cause very different from a mere deficiency of room among the bones of the pelvis, or an unfavourable position of the head: I mean, rigidity

of the softer parts; and of all the laborious labours which have fallen under my care, these labours of rigidity are, I think, by far the most unmanageable, and may therefore be looked upon as very undesirable undertakings for those who are commencing their obstetric career.

Even when women bear their first child early in life, the labour of rigidity may now and then happen; but such rigidities are more especially likely to occur in those cases where women marry at a later period, about the age of forty, and where, too, they have enjoyed a vigorous health, previously undisturbed by those floodings, or leucorrhœas, by which the softer parts are so effectually relaxed. When rigidity exists, provided we are habituated to investigations of this kind, it may, by examination, be very easily detected, for, instead of yielding as in ordinary cases, the vagina feels firm, and dry, and contracted, insomuch that you have no small difficulty in passing the finger to the mouth of the uterus, also, on examination, found to be firm and in good measure closed. In these cases of rigidity, under the best management, contusions, inflammations, sloughings, suppurations, and lacerations of the perineum, more especially, are liable to occur; sometimes there are convulsions, and sometimes retentions of urine. Almost invariably the child is born dead, and not very uncommonly the woman herself is ultimately lost, so that in the commencement of your obstetric practice, more especially, I would advise you, by all means, not needlessly to expose yourselves to difficulties so unmanageable.

In the labours of rigidity, it should be our first indication to produce, if possible, a laxity of the softer parts; but, unhappily, we are in possession of no very effectual means by which an indication of this kind may be accomplished. When women have large uterine bleedings, these generally produce much relaxation of the passages; hence, in these labours of rigidity, we are advised by some to take a hint from this observation, and to make free use of the lancet. By some it has been recommended, that a month before delivery ten or twelve ounces of blood should be taken away; that a fortnight before delivery, we should take ten or twelve ounces more; and more especially when the delivery itself commences, if the woman is robust, we are advised to bleed more copiously, abstracting twenty-five ounces, more or less, according to the circumstances of the case. Sometimes thirty, sometimes even forty ounces have been drawn, a bold practice in these cases, the more safely admissible, however, because the patients are frequently firm and robust. To obtain the full effect from the relaxing powers of depletion, you ought, by all means, to perform your bleedings in the commencement of the labour; and this promptitude clearly becomes justifiable, provided it is obvious, from the degree of rigidity, that to this venesection we must ultimately have recourse.

The softening power of fomentations in these cases is unhappily

but small; relaxation of the os uteri and the upper part of the vagina cannot, perhaps in any degree, be produced in this manner; but relaxation of the external parts, the labia pudendi and perineum for example, may perhaps be accelerated somewhat; and these relaxants, therefore, ought by no means to be neglected. To take a seat over steaming water can, I conceive, be productive of but small benefit, though it may amuse the mind somewhat; in some cases inspiring confidence, at the same time that it inflicts no injury on the patient. To use these emollient relaxants with full effect, however, you ought to be supplied with a large quantity of warm water and flannels, and for five or six hours together the vulva should be fomented, so as to mollify, as much as may be, before the head descends upon the external parts. For applying these fomentations, the most obvious season is the close of the labour, when the child, approaching the outlet, lies near the perineum and the labia pudendi. It is well, however, to begin the fomentations before the head is descended, in order that the parts, softened by your operations, may be brought into a state of readiness before the cranium begins to emerge.

In the laborious labours of rigidity, the warm bath has been recommended, a remedy more commodious in the practice of the hospital than of the private chamber; but, really, as those parts are not constricted by muscular spasm, and as they are not likely to become relaxed in consequence of faintness, I do not think that much advantage may be derived from the use of the warm bath, though, should circumstances conduce, it may be tried. *Tobacco injections* are scarcely adapted to the nature of the difficulty, and they are not without their dangers. Very powerful they certainly are in relaxing the muscular fibres, but not equally powerful in producing that relaxation which laborious labours, arising from rigidity, require. For myself, in endeavouring to effect the relaxation of the softer parts, fomentations and bleedings are the remedies in which I principally confide.

In these laborious labours, you must not forget, that not unfrequently women are ultimately delivered by their *natural efforts*, and perhaps by their natural efforts most safely, although they may have been one or two days in labour, the pains during the whole of this term having been more or less severe. In these cases, it is the office of the accoucheur to watch his patient diligently, in order that if any bad symptoms should manifest themselves, and those symptoms should become alarming, he may immediately have recourse to his obstetric instruments, before any serious injury have been inflicted. One point I particularly recommend to your recollection, and that is, the numeration of the *pulse;* if it is not above 110, all is safe, as far as the mother is concerned; if it rise to 120 or 130, or 140 in the minute, I am not prepared to say that the mother must therefore do ill, but there certainly is much ground for apprehension.

In those cases of laborious labour resulting from rigidity of the

softer parts, you must be very cautious of the perineum, for when the cranium emerges, this part is much exposed to contusion and laceration, and very extensive slough or rupture may be produced. To prepare the perineum, you may bleed and foment, as before recommended; and, to prevent laceration, you may proceed as follows: — The woman, lying on her left side near the edge of the bed, with the right hand you bear upon the cranium supporting the perineum with the left, and wait in expectation of the uterine action. If the parts are lax, and the head advances, and, examined by the touch, the perineum seems to be in no danger of disruption or contusion, though the hands may still be kept in readiness, it is unnecessary to interfere; but if the head, bearing too rapidly forwards, a rending of the perineum is to be apprehended, you may then, with the right hand, resist the advance of the head, while you effectively restrain the perineum by the counter-pressure of the left. During the emersion of the head, voluntary bearing is frequently recommended; but in these cases it is obviously improper. It is unwise to resist the passage of the head longer than the security of the perineum requires; for I am not sure, that in preserving the perineum we are not at the same time endangering a rupture of the uterus. On these occasions you are interposed between two dangers, and it requires some little nicety to determine when you ought to admit or resist the passage.

If the natural efforts fail in laborious labours, obstetric instruments must obviously become your next resource; but in these labours of rigidity, I should by all means dissuade you from the use of the tractor or the forceps. That a gentle trial of them may now and then be justifiable I do not deny; such trials I have myself ventured; but, on the whole, I distrust the practice. Owing to the rigidity of the softer parts, use the tractor or forceps as gently as you may, there is almost always a tendency to sloughing and bruising of the passages; the more to be regretted, as the fœtus, after all, is generally still-born. Under all circumstances, if you must have recourse to instruments at all, you had better, at once, have recourse to the perforator. In deciding whether instruments are or not required, you may be guided by that general rule to which I have so often adverted. If there are no dangerous symptoms, and if the woman have not been in labour for twenty-four hours after the discharge of the waters, instruments are not justifiable; but if dangerous symptoms are apparent, or if the woman have been in strong labour for twenty-four hours, or a longer term, the perforator may be necessary, and therefore justifiable.

Do not administer ergot or other stimuli in these cases — they are injurious; in the laborious labours of rigidity, stimulants are not required. Pains you do not want, but relaxation. Do not suffer your patient to be in labour too long; — a great and fatal error; the issue after all is a dead child, and contusions, inflammations, and sloughings of the maternal parts are apt to ensue.

Do not forget the caution which I have given you respecting the use of embryospastics; contusion, laceration, inflammation, suppuration, collapse, may all be the results of forgetfulness here; let your tracheal pipe be in readiness; after-floodings are probable; beware.

Such are the leading causes from which, in ordinary cases, laborious labours are arising,— from rigidity, from disproportion, or from the incommodious position of the cranium; these causes operating separately or in combination with each other. It is not to these agents only that the difficulties and prolongation of these labours are to be ascribed; of laborious labours there are other causes, real or reputed, and to a brief consideration of these we will now proceed.

Sometimes the membranes of the ovum are extraordinarily unyielding; firm, for example, as the bullock's bladder, so that, though the os uteri is wide open, and the bag of water is bearing forth into the vagina, the membranes, notwithstanding, remain unbroken, and in some rarer cases the labour is prolonged for one or two days in consequence. A case of this kind never fell to my own lot, and I suspect its occurrence to be rare. Dr. Orme, known and respected as an obstetric teacher, seemed, according to his own showing, to have encountered the difficulty under consideration; the os uteri had been long dilated, and the membranes had been forced into the vagina, but the delivery being delayed, his assistance was requested; on entering the chamber, said he, I heard the membranes give way with report, and immediately the fœtus and the water escaped together. Examination after the birth of the placenta proved the toughness of the membranes, and demonstrated pretty clearly the nature of the difficulty. In a case of this kind, to rupture the membranes must be easy. If more gentle measures fail, you may lay open the membranes in the same manner as you would craniotomize; but before you have recourse to an instrument of this kind, never, without necessity, to be introduced into the vagina, I would advise you by all means to break through the membranes, if practicable, by the mere pressure of the finger. Pain supervening, the bag descends and becomes tense, and the womb bearing down in one direction, you may carry one or two fingers into the vagina, and bear against the membranes in the other direction, and under this action and counteraction, the rupture will seldom fail to be accomplished. Should this expedient fail, you may take a penknife, (not to introduce it into the vagina,) but to notch your nail, and communicating in this manner a serrated edge to the finger, you bring it to bear on the unyielding membranes, and, under gentle laceration, they readily give way.

Be pleased, however, to recollect here, that the bladder becomes overcharged with urine, and may be pushed down behind the symphysis pubis below, and before the child's head, or it may, perhaps, sometimes be forced into the same position by the action of the membranes, where they are firmer than ordinary. Be care-

ful, therefore, not to lay open the bladder in mistake for the membranes. In an unguarded moment, you may mistake the protruding bladder for the membranes, and, in such a case, if you have recourse to the perforator, you may lay the bladder open instead of the involucra; hence one among other reasons why, in this operation, the perforator ought not to be heedlessly employed. Disruption of the membranes can never, perhaps, be required in these cases of unyielding involucra, unless the os uteri be fully expanded previously, and the bag be forced down into the upper half of the vaginal cavity.

The umbilical cord is sometimes unusually long, of three or four feet for example, and sometimes it is equally remarkable for its brevity. Dr. Haighton met with a case in which the cord's length, on measurement, was found not to exceed seven inches. Brevity of the cord is said to give rise to laborious labours, but of this I much doubt. It was the opinion of the ancients, that the fœtus, not expelled by the action of the uterus, made its way into the world by its own efforts. Holding this opinion, they were led to infer, that where the umbilical cord was short, the fœtus would be retained; being tethered, as it were, to the sides of the uterine cavity. From the ancients, then, I apprehend, has been derived this opinion of impeded labour, produced by brevity of the cord, but the foundation of this opinion appears to be erroneous. In modern times it has been proved demonstratively, that it is not by its own efforts that the fœtus makes its escape. The dead fœtus, *cæteris paribus*, is born as easily as the living. The child is expelled by the contraction of the womb, and these contractions of the uterus, I have myself had frequent occasion to feel, when the hand has been introduced for the purpose of removing the fœtus by turning. Hence, when the child descends, the uterus descends also, as it is the movement of the one that gives motion to the other; therefore the distance between the uterus and the umbilicus, as the labour advances, must always remain pretty equal; nor will the shortness of the cord, I conceive, make itself felt in the labour, till the body of the fœtus has escaped from the vagina. Be it remembered, also, that if the cord resisted the progress of the fœtus, the placenta must become detached under the strong action of the uterus, a large flooding ensuing in consequence.

It is not, I think, frequently, that the *sacro-coccygeal joint* is *anchylosed*, yet this accident now and then occurs; and I have a very beautiful specimen of this anchylosis, the sacrum and coccyx being consolidated into one bone. When the coccyx is anchylosed at right angles with the sacrum, encroaching on the outlet of the pelvis, it may materially obstruct the passage of the head; and, in some rarer cases, laborious labour, demanding the administration of instruments, may be produced in consequence. That such is the nature of the obstruction, you are led to surmise, by finding, when the head is at the outlet, and cannot be transmitted, that it bears very forcibly on the coccyx and pubes, and the nature of

the case once suspected, you pass your finger internally upon the surface of the coccyx, and externally laying the thumb in apposition with the finger, you feel the bone through the softer parts, and easily perceive its immobility. A case of this kind, I should be inclined to treat on the general principles already so often reiterated. First, I should give a fair trial to the natural efforts for four-and-twenty hours, if no dangerous symptoms appeared; and if twenty-four hours passed away without delivery — or if dangerous symptoms occurred, I should then have recourse to the tractor or the forceps; or should dangerous symptoms become manifest, or without the concurrence of these symptoms, should the labour be prolonged beyond the six-and-thirty, or eight-and-forty hours, after the discharge of the waters, I should then have recourse to the embryotomic instruments, provided the embryospastic had been fairly tried without success.

When women bear their first child late in life, labour, as I have already observed, becomes more or less laborious in consequence. In women, however, who are advanced to the middle period of life —the fortieth year, for example, it will not be necessary, under ordinary circumstances, to have recourse to instruments. Should no symptoms of danger become manifest, give a fair trial to the natural efforts for four-and-twenty, or six-and-thirty hours after the discharge of the liquor amnii, and the fœtus will, I think, not unfrequently be expelled.

Like the adult, the fœtus, too, at full age, may be unusually large, and this extraordinary bulk may become a cause of laborious labour. Instead of weighing about seven pounds only, the fœtus, at birth, may weigh twelve, fourteen, sixteen pounds, or more than this. I have myself seen a woman of middle stature, who produced remarkably large children — one of which, without clothes, was found, as I was assured, to weigh seventeen pounds at birth. Now, in these cases, generally when the children are extraordinarily large, the head being large also, unless the pelvis be of more than common capacity, difficulty of parturition ensues; but this difficulty, be it observed, is to be managed on the same principles as those difficulties which result from coarctation of the pelvis. Essentially, indeed, the two cases are the same; in both disproportion is the cause of the obstruction; but, in the one case, this disproportion arises from the contraction of the passages, and, in the other, from the overbulk of the cranium.

You will meet with cases, though rarely, in which the head is *hydrocephalic*, half a pint, or more, of water accumulating within the cranium. In these difficulties, it has been proposed to turn the child, an operation of which, as you may infer from cautions already given, I can by no means cordially approve. In the very last case of hydrocephalic labour which has fallen under my notice, the practitioner, with the best intentions, carried his hand into the uterus, but a fatal rupture of the genitals was the consequence. To the exclusion of this formidable operation, therefore, I would

advise you to adopt, what to me appears to be a safer practice — confiding the birth to the embryospastic, the embryotomic, instruments, or the unassisted efforts of nature.

The head, when hydrocephalic, readily yields under pressure; and sometimes by disruption, and sometimes by an accommodation of its form and bulk, it will be found, without the aid of instruments, to make its way into the world. Should no dangerous symptoms be observed, therefore, give a fair trial to the natural efforts, applying the lever, or the forceps, should these efforts fail you; but should the softness of the head unfit it for the action of these instruments, then, if delivery be necessary, betake yourselves to perforation; a large opening would not be required, a small puncture would discharge the waters.

In labours, laborious or not, it sometimes happens that the arm and cord descend together into the pelvis; the simultaneous descent of these parts being, on the whole, not uncommon. When the cord is in the pelvis, together with the head of the fœtus, not unfrequently the child perishes, stifled in consequence of the compression of the funis, and the interception of the placentar changes at a time when respiration cannot be performed; and this more certainly if the labour be retarded by the rigidity of the parts, the position of the fœtus, the bulk of the cranium, the coarctation of the passages, or any of the other causes already enumerated. Now, it is desirable, if possible, to secure the child against these dangers; and it was first suggested to me, by one of my own pupils, that a piece of sponge, about the size of four fingers, very soft and fine, should be insinuated into the uterus, and left there, in such a manner as to carry back the descending loop of cord and preclude its return into the vagina. Should much cord descend, it could hardly be replaced in this way. A smaller descent may be remedied; I have myself tried the practice with success. If it can be accomplished without violence, it is, I think, to be recommended; the inexperienced, however, and the awkward, had better refrain. In some rare cases, to be looked upon as anomalies, should the pains remit, you may carry the cord and the hand into the cavity of the uterus, provided the parts make no resistance, and looping the cord upon some part of the fœtus, you may thus prevent its reiterated descent. As a general practice, however, this is not to be advised, as the introduction of the hand is always attended with more or less risk of laceration. Should these measures fail us, we must then, I believe, be contented to place the cord in the most capacious part of the pelvis, directing the patient to make the most of her pains by co-operative voluntary urging, the birth of the head being accelerated cautiously, by the tractor or the forceps, provided we are dexterous in the management of these instruments.

With the cord it sometimes happens that the arm descends, the birth becoming obstructed, more especially if there is a large head, or a contracted pelvis. By the hand or the sponge, as before

explained, the arm may sometimes be replaced; but, should these attempts fail, the delivery may be completed by instruments, the embryospastic, or the embryotomic; or the birth may be confided to the unaided efforts of the uterus; and in determining in which of the three modes the birth should be completed, we must, I conceive, be guided by the principles already prescribed.

Thus much, then, respecting the management of this important class of labours — laborious labours, as they are called, — occasionally met with in country practice, still more frequently in that part of practice which lies in the midst of our large manufacturing towns, those nurseries of feeble bodies and fretful minds. Dreadful expedients, the dangers and difficulties of these cases may require — the destruction of the ovum, the sacrifice of the fœtus, the administration of some of the most formidable instruments, and the execution of some of the most perilous operations, with which the healing art is provided. Two lives are always in jeopardy, everything conduces to inspire an interest for their safety. How then must England, how must Europe, admire the dignity of a medical body, which sinks a part of the profession to which, in the realities of life, such trusts are confided, into a mere vocation, undeserving its attention; — such loftiness is truly regal.

LECTURE XXX.

RETENTION OF THE PLACENTA.

Before I proceed to the subject of our inquiries, I mean retention of the placenta, it may be well to premise an observation, which, though brief, is not without its importance. Of laborious labours it is not to be forgotten, that though they sometimes arise from one cause only, yet they are occasionally referable to the co-operation of several; thus, rigidity of the parts may occur with unfavourable position of the fœtus, or both may be met with where there is a coarctation of the apertures of the pelvis.

In the earlier, as in the latter months, in laborious and flooding cases, and in natural labours, the placenta does not always escape with the usual facility; difficulties sometimes impede its abstraction, and it may be retained for days, weeks, not to say one or two months.

Where the placenta in this manner remains in the uterus after the expulsion of the fœtus, occasionally for days together, not a single alarming symptom occurs, so that if you were not acquainted with the history of the case, you would scarcely suspect that the placenta was still lodged in the uterine cavity. It is a great mistake to imagine, because the placenta is lying in the uterine cavity,

that the woman must *necessarily* do ill; and from this erroneous impression I wish your minds to be liberated. So long, however, as the placenta is retained in the uterine cavity, so long the patient is liable to various symptoms more or less alarming, of which the principal are *pains, bleedings, uterine discharges, and constitutional irritation.*

When the placenta is retained in the uterus, it will sometimes give rise to cutting, grinding, sawing pains, felt in the back or the front of the abdomen near the symphysis pubis, and the hips and thighs, the pains being very much like the first pains of labour, or those latter pains felt after the birth of the fœtus, and which are usually denominated *after-pains.* These pains is by no means difficult to alleviate by the use of opium, but they are rather to be sought than deprecated, for by these pains it is, or rather by the contractions which produce them, that the placenta is ultimately expelled.

When the placenta is retained in the uterus, whether in the earlier or the latter months, and in the latter months, more frequently, the patient is always liable to floodings more or less copious; and, indeed, this is the most dangerous symptom to which she is obnoxious. From my own personal observation, I am prepared to state, that the placenta may be quiet — innocuous in the uterus — for one or two weeks together, large eruptions of blood ultimately occurring notwithstanding; and you may, therefore, set down, among the dangers to which women are always exposed, whether in the earlier or the latter months, but in the latter months more especially, these copious eruptions of blood from the uterine cavity. After what has been said so largely on the subject of floodings, you will not be at a loss as to the management of discharges of this kind. For a fuller exposition of the method of treatment, I must refer you to the principles before laid down; suffice it to remark here, that the only effectual remedy for putting a stop to the discharge is the removal of the placenta; and, therefore, if a woman be liable, not merely to small shows of blood, but to the larger eruptions, the sooner the placenta, whether by manual operations or otherwise, is an easy manner extricated from the uterus, the better.

When the placenta is retained in the uterus, you will sometimes find that the patient remains, in good measure or entirely, free from any offensive or fœtid discharge; but so long as the placenta is lying in the uterine cavity, so long is she liable to all the effects of its putrescence there; and sometimes the discharges become offensive in a high degree, the chamber, though spacious, becoming infected with the offensive odour, which may be now and then perceived in the adjoining apartments.

Why it is in some cases that the placenta putrefies rapidly, while, in others, it remains unchanged, I am not able, in a satisfactory manner, to explain, though the subject is well worth investigation. I strongly suspect, however, that the placenta will be

found to putrefy much more readily, if it be completely detached from the uterus, than in those cases in which it continues to adhere to the uterine surface; for detachment from the uterus seems to imply a consequent extinction of vitality.

Lotions may be found of service here, provided, by means of a long tube syringe, they are thoroughly injected into the uterine cavity. For the performance of this injection, the accoucheur will be found the best operator; and it is desirable that the fluid be injected repeatedly in the course of the day, unless bleeding, or other symptoms, forbid. Warm water, decoction of bark, or other injection, diluent or antiseptic, may be recommended in these cases. The fluid being absorbed, you bear the syringe in the right hand, carrying the fingers of the left, in the way of a director, to the mouth of the uterus, and then the tube being passed along the finger into the uterine cavity, by the action of the syringe, it may be completely washed out. After all, the only effectual mode of arresting these discharges so offensive, is the abstraction of the placenta, either by manual operation, or the deobstruent remedies, of which I shall hereafter treat; and to this remedy we must ultimately have recourse, should symptoms become pressing, and other means fail.

When the placenta is retained in the uterus, we sometimes have the satisfaction to find that no active symptoms of constitutional irritation occur, but the woman lies perfectly quiet, her appetite good, her bowels regular, and her general health undisturbed; so long, however, as the placenta remains, so long constitutional symptoms, of the most alarming kind, are liable to supervene; purgings, vomitings, sweatings, a pulse of 140, a cheek of typhoid tint, and a brown tongue. I once imagined that these constitutional symptoms might rather be ascribed to violence used to get away the placenta — occasioning contusions and lacerations of the genitals, than to the mere action of the placenta itself; and the rather, because, having paid considerable attention to this subject, I had noted more than one case, in which the placenta had remained for a long time in the uterus, without a single conspicuous symptom of irritation becoming manifest; but from observations since made, I have been induced to believe, that independently of all manual practice, these irritations may be produced. A girl, in St. Thomas's, aborting about the fourth month, I was requested to see her, when I found the placenta could not be got away without force and danger; and I deemed it wise, therefore, not to make the attempt. On the fifth day putrid discharges appeared, and, at this time, there was great constitutional irritation; a cheek flushed, a countenance anxious, a pulse of 140, vomiting, purging, and copious perspirations. Urged by the symptoms, I removed the placenta at this time, for it appeared to be pushed some little way into the vagina; all the symptoms giving way very rapidly afterwards, and the girl ultimately recovering. Is the *putrid* placenta alone liable to occasion these irritations? I doubt; for it is a

matter of fact, well worthy of notice, not only in midwifery, but in surgical science also, that substances may become very putrid, and yet they may lie in the vagina for a length of time, without occasioning much constitutional irritation. Thus much, then, respecting the various symptoms, more or less alarming, which may result from failure in the abstraction of the placenta — pains, floodings, putrid discharges, and violent constitutional irritation. Let us consider what these cases require.

It is agreed on all hands, among practical men, that as the woman is always obnoxious to these symptoms, so long as the placenta is retained, it is always desirable that the placenta should be got away. The means to be employed for this purpose are divisible into two kinds; the deobstruents, as they are called, and those which require active manual operation.

When the placenta is retained in the uterus, independent of any very active manual operation, we may, sometimes, obtain its expulsion, merely by laying the hand on the womb externally, feeling it through the abdominal coverings, grasping it, and thus stimulating its fibres to contract, the placenta being expelled, or, to use a course but significant expression, this viscus being squeezed forth by the action of the hand. This is a very simple mode of ridding the uterus of its contents, proper, more especially, where it is retained in the latter months; nor is much active manual exertion required for the purpose.

When the placenta is retained in the uterus, whether in the earlier or latter months, we may sometimes insure its expulsion by the use of some remedy which may stimulate the bowels, as purgatives, for example. Mr. Fagg, a practitioner of experience, informs me, that he has found the injection of senna and salts into the rectum to be of no small use; six or eight ounces of the infusion of senna, with an ounce of salts, formed into an injection, and thrown into the rectum, have, apparently, had the effect of exciting the pains, and thereby accelerating the expulsion of the fœtus; and, on his authority, I recommend the remedy to your attention. The action of the womb may be brought on by the application of cold; not that I should recommend you to advise your patient to plunge her hips into cold water, but you may venture to administer the cold as if you were applying it in flooding cases, sprinkling the napkin, and suddenly and smartly dashing up on the abdomen and thigh; and perhaps the stimulus of this sudden impulse may cause the womb to contract. I think it proper to mention this, as one of the deobstruents which may be resorted to in these cases; but, after all, it is one that is not to be relied on. Coughing, sneezing, blowing on the back of the hand, not to mention voluntary bearing, may bring on the action of the womb, and these, therefore, may be recommended where deobstruents are required; but of all deobstruents of this kind, the most efficient is retchings; the placenta sometimes speedily escaping when the patient begins to vomit. In the commencement of practice, you

may occasionally be at a loss to know how to get the placenta away, not because there really is difficulty, but because you are timid, and very properly so, while yet inexperienced. In these difficulties you very unwisely leave the patient, instead of writing to procure further assistance, and while you are away, perhaps, an old woman comes into the room, puts a candle into the throat, excites retching, and liberates the placenta at once. Nor is retching to be despised as a deobstruent (not that I would advise you to nauseate the patient with a candle), but you may insert a feather into the back of the throat, as the emetic is, perhaps, no less efficacious, and is certainly more elegant.

In cases where the placenta is retained, if the *ergot* be at hand, I would recommend you to make a trial of this; not that I have such experience of it in these difficulties as enables me to state positively that it has much effect; but I have reason to believe that, in many cases, it has been used with advantage. The ergot, or *secale cornutum*, you may now purchase at most of the respectable druggists. A drachm of this ergot, coarsely powdered, may be mixed with three ounces of boiling water, to be poured upon it; and this being decocted to an ounce and a half, you may give the patient a table-spoonful as a dose, repeating it every twenty minutes, unless you perceive that the action of the womb has been previously brought on. Besides these deobstruent remedies, which require but little manual operation, the hand or fingers of the accoucheur may be used with advantage for the removal of the placenta. In the earlier months, perhaps, we may remove the remains of the ovum, by passing two fingers into the vagina; or, if it lie too high to admit of abstraction in this manner, then, if the hand be small, the vagina large, and the parts relaxed, we may introduce the whole hand into the vagina without the risk of tearing, and the two fingers being carried into the cavity of the uterus, securing a hold of the ovum in this manner by the action of the fingers, you may often at once bring it away. In the latter months, also, independently of the introduction of the hand into the uterus, the placenta may sometimes be abstracted, as it often lies down in the vagina; and when it lies there you may lay hold of it, careful not to tear any part. The whole may then be abstracted at once; the mass being diligently inspected afterwards, so as to ascertain that no part have been left behind in the uterus. It very frequently happens, however, in difficult cases, that the bulk of the after-birth is lying in the womb, and you must then, though unwillingly, carry the hand into the cavity of the uterus, where you may first detach it by passing the fingers between the womb and the viscus, and having detached it, you may lay hold of its substance, and cautiously bring it away. Nor is it difficult to perform this operation, where the accoucheur has been long in practice, and has the perfect use of his fingers.

When the placenta is retained, it sometimes becomes a point of great nicety to decide when you are to operate manually and

when you are not. Sometimes my obstetric friends comes to me in great perplexity, asking what they are to do, whether they are to leave the patient to her natural powers, to trust to deobstruent remedies, or to interfere manually? I think it may be observed with truth, that it is always highly desirable that the placenta should be got away, if it can be withdrawn without violence; because, as I before explained to you, though it might lie in the uterus quiet for a time, so long as it lies there the patient is liable to floodings and other dangerous symptoms. This being the case, I have endeavoured to establish certain principles for my own guidance here, and they are, in few words, the following: — If the placenta be retained, and I can, by manual operations, abstract it without violence, without the risk of bruising or tearing, and if there be no reasonable hope of liberating it by the use of deobstruent remedies, there being an obvious necessity for manual operation, I abstract it in this manner. I repeat this: if the placenta be retained, and there is reason to believe, on a careful examination of all circumstances, that it may be removed without violence, without the risk of bruising or tearing, and if there be no reasonable hope of liberating it by the deobstruent means before mentioned, I then by all means endeavour to remove it manually. On the other hand, if the placenta be retained, and I find the hand cannot be carried up so high as to secure the command of the placenta without the risk of bruising or lacerating, I then leave it in the uterine cavity, not because it is not an evil to leave it there, but because, to leave it in the uterus, is a smaller evil than to abstract it with violence, and we had better abide by the smaller evil, than expose ourselves to the greater evil, that of lacerating, bruising, and killing. But to proceed: if, acting on this principle I leave the placenta behind in the uterus, which I have sometimes done for days or weeks, and with success, too, I watch the patient diligently during the whole term of retention; and if any alarming symptoms supervene, I again examine; and although I could not before have removed the placenta, I now perhaps find that I can abstract it with facility; should the abstraction of the placenta still remain difficult, provided the danger be great, I urge my endeavours to remove it more diligently than before, in flooding cases especially, the most dangerous, and those too, happily, in which the parts are the most relaxed.

In fine, the rule of practice here is this: first, immediately after the birth of the child, when the placenta is retained, provided it can be removed without consequent danger, let it, by all means, be taken from the uterus. Secondly, — when the placenta is retained for days together, and no symptoms of danger appear, examine occasionally, removing the placenta at the time of examination, provided it can be withdrawn, as it were, by a mere touch, and committing the expulsion of it to the natural efforts, provided it cannot be abstracted with facility. Lastly, — when

dangerous symptoms appear, and the placenta is lying in the uterus, *the symptoms being clearly referable to the retention of the placenta* — if the symptoms be not urgent, you had better leave the placenta, if it cannot be abstracted without violence; and even where the symptoms are pressing, you are still scarcely justifiable in abstracting manually, provided the operation be attended with the risk of laceration; for when a patient must be exposed to dangers, in general, perhaps, she had better be exposed to the dangers which arises naturally from her situation, than to those which may result from obstetric violence. Much must depend on the individual character of the accoucheur; a skilful practitioner may venture to operate where one who is wanting in dexterity ought to refrain. It is often better to fall into the hands of nature than those of nature's much-favoured, but often misguided sons.

Having said thus much, generally, respecting the symptoms and management of the retained placenta, we will now proceed to the consideration of the different varieties of this accident.

After the birth of the child, the umbilical cord in some cases breaks away, close upon the after-birth, so that you lose your hold of the placenta, and in other cases, where the placenta is large, in attempting to abstract, you may leave a third or a half of it behind, this portion being torn off from the rest. In those cases in which the placenta is lying in the uterus wholly or partially, your hold being lose, some difficulty may attend its abstraction; and if you have never reflected on it before you meet the accident, you may be at a loss as to the mode of procedure. When, in this manner, you lose your bearing on the placenta, a portion of it being left behind in the uterine cavity, it may sometimes be expelled from the uterus, nevertheless, by the unaided efforts of the womb. Waiting for one or two hours, more especially if you give some of the *ergot* in the way formerly advised, you may reasonably hope, that, under uterine efforts, the placenta will be expelled completely from the uterus, or, at any rate, that it will be pushed into the upper part of the vagina, so that the fingers may reach it. Suppose, however, that the pains are feeble or failing, in these cases the expulsion of the placenta may be effectively assisted, by merely laying the hand on the abdomen above the symphysis pubis, and feeling for the uterus, and pressing it, the placenta being urged out of the uterine cavity by compression, in the same manner as you might, by well-directed pressure, expel any other substance from a bag. Tenderly — resolutely — dexterously — prudently proceeding in its way, you may press the entire mass into the vagina, or at any rate so large a portion of the placenta may frequently be detruded, that, lying under the action of the fingers, the whole of it may be easily got away. Should these means further fail you, there is yet a third mode the least desirable, but the most effectual, by which the placenta may be removed, (and to this you may have recourse as the last resort,) I mean the introduction of the hand into the uterine cavity, an operation,

against the unnecessary performance of which you have already been so frequently cautioned. In performing this operation, you will not, probably, meet with much difficulty, because, as half an hour or an hour before, the head and body of the child have been transmitted along the vagina, your hand, of course, unless it be unusually bulky, if duly lubricated, will pass up with facility. The hand then being in the uterine cavity, you may grasp the placenta and draw it downwards, proceeding with resolution and tenderness, careful that you leave no portion of after-birth behind. Such are the three practices to be adopted for the removal of the placenta in difficulties of this kind; the introduction of the hand, the external compression of the uterus, and the commission of the expulsion to the unaided efforts of the womb. Provided you find that the parts are very lax, and that the hand may be carried into the uterus with perfect safety, I would excuse your having *early* recourse even to manual operation; but if in making this essay, or on making an examination, and considering all circumstances previously, you expect there will be the least difficulty to the introduction of the hand, or the smallest probability of laceration, then, by all means, first confide the birth of the placenta to the other two modes of treatment, and satisfy yourselves of their inefficiency before you have recourse to this undesirable operation.

When examinations have been frequent, or deliveries have been laborious, or instruments have been administered, and sometimes independently of the action of these causes, the softer parts occasionally become unusually inflamed and excoriated, and the genitals, swelled and irritable, are totally impatient of the touch. In these cases, then, in which there are excoriation, swelling, and irritability, embarrassment may arise in the abstraction of the placenta, — in general, however, to be subdued with facility. The parts being in this condition, provided the patient possess a moderate share of strength, you ought, I think, to take away twelve or sixteen ounces of blood, giving afterwards a somewhat copious dose of opium, and fifty or sixty drops, for example, (drops, not minims,) may be given at once in cases of this kind. This done, procuring a full supply of warm water, you may thoroughly foment the parts; and after a thorough fomentation, large doses of opium, and the extraction of blood from the arm, you will most probably find the irritability so much allayed, that the necessary manual operations may be performed, so that, seizing the cord with the one hand, and the substance of the placenta with the other, with resolution and gentleness, you solicit and lead it forth from the uterine cavity.

There is a third and an important cause, to which the retention of the placenta may sometimes be ascribed; and this cause is an irregular contraction of the womb, to the consideration of which we will next proceed. After the expulsion of the fœtus, when the birth of the placenta takes place in the usual manner, the summit or fundus of the uterus is first contracted, then the body, then the neck, the mouth contracting ultimately; there being in general a

tendency to contractions of the upper part of the uterus, before the under portions become constricted. Now, the womb contracting in this manner, in ordinary cases, the placenta and uterus mutually separate; for when the womb contracts, being muscular, the placenta wanting that muscularity, cannot contract itself in a corresponding manner, and the surface of the uterus moving, of consequence, on the placentar surface, a mutual dissolution of adhesion ensues. The placenta then being detached in this manner, and the uterine contractions proceeding, the detached mass is pushed lower and lower towards the vagina; and if the uterus be very vigorous and active, it may even be urged beyond the external parts, or a considerable way into the vagina, becoming, in most cases, partially pushed into the vagina, so that it may be easily seized and taken away. But when irregular contractions occur, in some cases we find the uterus contracted around the placenta, so that you can neither abstract the after-birth, nor insinuate your hand into the cavity of the womb, and, in other cases, in their occurrence more common, the placenta is retained by circular contraction of the uterus, seated more frequently at the mouth of the womb, and more rarely in the centre, insomuch that the cavity of the womb becomes divided into two chambers, one superior, and one below. This constitutes what, from an analogy of form, has been denominated the *hour-glass* contraction; not of so frequent occurrence as many imagine, for, unless an accoucheur be tolerably skilful, he may think there is this clepsydral contraction of the uterus, when in reality the contraction is oval, the upper part of the vagina long and dilated, being, in examination, mistaken for the lower part of the cavity of the womb.

These irregular contractions are not of difficult detection. In a preceding lecture, when speaking of the delivery of the placenta in ordinary cases, it was observed, that you ought to carry your fingers along the umbilical cord, until you reach the mouth of the uterus. After which, when you find any portion of the placenta lying forth at the mouth of the womb, this part should be secured, and, in this manner, with the cord in one hand, and the body of the placenta in the other, you may withdraw the entire mass from the uterus, the uterine contractions effectually assisting. If it so happen, in these difficulties, that the uterus is firmly embracing the whole of the placenta, examining externally above the symphysis pubis, this contraction may be detected pretty easily; feeling for the uterus above the symphysis pubis, grasping it as you ought always to do, and finding it very round and hard, while yet no part of the placenta stretches down into the vagina, you will have a clear proof, that it is in this way that the placenta is retained. While, in cases where a circular contraction, whether oval or central, is the retaining cause, the contracted aperture may be felt on passing up the fingers.

When retention of the placenta occurs in consequence of these irregular contractions, by a little manual skill and labour, you may

sometimes abstract the placenta easily enough: carry one or two fingers of the left hand up to the os uteri, and insert those fingers into the apertures; then the fingers being deposited there, act with them, in the manner of a dilator; tenderly, resolutely, perseveringly, and again I say tenderly, expanding the uterine mouth as it may bear, and thus room may be obtained to bring the placenta away.

In some few cases, on carrying the hand to the entrance of the uterus, you may find lying in it a portion of the placenta. In these cases, if the constriction of the uterus be firm, it may not be safe to draw down by this portion, lest laceration and detachment should ensue, yet, should it so happen, that the mouth and neck of the uterus are lax, then, without further trouble, the placenta may be abstracted, the viscus being gently worked through the opening. After abstraction examine the secundines, and ascertain that the whole mass has been abstracted entire.

But it is not always that you meet with these cases of easy management, for sometimes the mouth and body of the uterus are contracted with more than ordinary firmness; or, if you dilate, the part contracts again more firmly than before; and, if you again dilate it, again it contracts; and if attempting to overbear resistance, you use a greater force, you lacerate and destroy. When, in this way, the contractions are very strong, and the womb very irritable, before you attempt to abstract the placenta, you ought to have recourse to relaxants. Bleeding to faintness might sometimes effectually resolve the uterine contraction, and some few cases might perhaps justify it. It must be admitted, however, that this is a rough measure, and not perhaps altogether without danger; for bleeding might be followed by flooding from the uterus, and the patient, if of feeble constitution, might sink. The *tobacco injection*, I have little doubt, would relax the uterus, even in the most difficult cases, so as to admit the introduction of the hand; but the tobacco injection is attended with considerable danger; and I have already laid it down as a principle, that the retention of the placenta is not attended with that degree of danger which may justify you in resorting to the more perilous measures. It has, too, been advised in these cases, that we should try the effect of cold, emetics, and other remedies insignificant, and unimportant, and sometimes a nauseating or emetic dose, sulphate of zinc or ipecacuanha, for example, may have the effect of expelling the placenta; or the sudden application of cold over the uterus, or the lower part of the abdomen, may relax the spasms. For myself, in all cases which I have hitherto met, I have found that the uterus has relaxed sufficiently under a very simple mode of treatment. From the arm I have abstracted sixteen or twenty ounces of blood, a loss which most patients can bear very well, and immediately afterwards administered a copious dose of opium, sixty or seventy drops of the tincture, or a corresponding quantity of the solid, or of Batley's excellent anodyne. This done, I have waited half an hour till the irritability of the parts has been quieted, and then I

have proceeded to dilate the os uteri, and abstract the placenta, always bearing in mind the two grand principles of management here: I mean, first, that the placenta is never to be abstracted with violence; and, secondly, that if without violence it may be got away, its removal is desirable, as during its retention the woman is never altogether secure.

In some women, there seems to be a strong *pre-disposition* to this *irregular contraction* of the womb after delivery; and this being the case, it comes to be a question of some importance, whether we may have recourse to any effectual preventive. Of the preventives proposed, one of the most promising is that which used to be recommended by Dr. Hamilton of Edinburgh, and this consists in committing the birth of the body to the natural efforts, the womb being suffered to expel it slowly after the birth of the head. If the head being expelled, we hastily draw the body from the vagina, before the womb is contracted, the uterus, suddenly emptied, becomes more obnoxious to irregular contractions afterwards; but where the body, arms, and legs, are pushed away by the regular and healthy actions of the uterus, a more regular and healthy contraction may be afterwards expected.

It rarely happens that the placenta is retained in the uterus, in consequence of inflammatory adhesions of that kind which have been denominated the *scirrhous;* for though you may frequently hear of cases so called, yet I am persuaded, from my own observations, as well as from the experience of my valued predecessor, Dr. Haighton, that genuine scirrhous adhesion is by no means common in its occurrence. Sometimes, however, the womb inflames; and, in consequence of this inflammation, the placenta may become attached to its surface; and if this have been going on in the earlier or middle part of gestation, the adhesions may be extensive and strong. With induration of the placenta, these adhesions may be accompanied, in consequence, I suppose, of an interstitious deposition of lymph in the pores of the placentar structure; and this induration it is, and not genuine scirrhosity, which has given rise to the epithet by which the disease is designated; for although the parts are hardened and altered in their structure, I am not aware there is that peculiar change of organization, which the morbid anatomist understands by this disease.

LECTURE XXXI.

RETENTION OF THE PLACENTA.

When the placenta coheres to the uterus, in consequence of scirrhus, to ascertain this is not, in general, very difficult, for, although the womb be thoroughly contracted, and though the accoucheur pulls resolutely by the cord and body of the placenta, it is not

found to descend far into the vagina, and the hand being introduced into the uterus to investigate the nature of the difficulty, the induration and the firm adhesion may be felt. When the placenta coheres to the uterine surface, there are different practices which may be adopted for its removal; and, first, we may endeavour to break through the connexion by managing the placenta in the ordinary manner, excepting that we draw with a little more resolution than ordinary, care being taken to avail ourselves of those moments when the womb is in action, and the pains are felt. If the after-birth cannot be abstracted in this manner, the cord breaking, and the body of the placenta tearing, we may then endeavour, by another method, to overcome the difficulty, namely, by passing the fingers between the placenta and the uterus, so as by peeling to detach the one from the other. Should the adhesion be firm, we may also fail in this mode of detachment, and it then becomes necessary to have recourse to a third expedient. The hand being in the uterus, the operator must cautiously tear away, piece by piece, that part of the placenta which is not become scirrhous, leaving each morsel, after detachment, in the uterine cavity, and proceeding to the separation of another, until all that part of the after-birth which is not schirrus and adherent, has been separated from the rest. When the healthy portion of the placenta has thus been separated from that part which is diseased, we may bring away all the different portions at once from the uterus; and it is better to abstract in this manner simultaneously, than to remove each portion separately, as this method of operating demands the repeated introduction of the hand. The detached pieces of the placenta being thus withdrawn, the accoucheur introducing the hand afresh, carefully examines that part of the placenta which still remains adherent to the uterus, and brings it away, if this may be accomplished without violence; but, should its safe removal be impracticable, he then contents himself with the separation of any loose portions of placenta which may have been left in connexion with the scirrhous mass, and leaves the scirrhous part itself in the womb. It is, I conceive, very desirable that the scirrhous portion of the placenta, if left, should be thoroughly cleared of those loose portions which are not scirrhous and adherent, for they may be expected to lose the vital principle afterwards, and to putrefy and give rise to offensive discharges in consequence. But what is to be done, if the scirrhous part of the placenta, not to be detached, is left behind in the uterine cavity? In such cases, I believe, the woman must be committed principally to her own resources, the practitioner palliating symptoms as they may arise.

The scirrhous portion of the placenta is said to have separated spontaneously, in some cases, after the practitioner had failed. More generally, however, if the patient recover, this diseased part wastes, sometimes, perhaps, wearing away under putrefaction, and, in other cases, wasting under a sort of absorption, similar to that which, after delivery, removes the secreting excrescences which

are formed upon the uterus of the ruminating animals. In all you do for these cases beware of violence.

After the expulsion of the fœtus, the womb sometimes lies quiet for a few minutes, and then again acts, the fundus and body contracting, while the mouth and neck remain open. In consequence of this contraction, the uterine surface separates from that of the placenta, and the after-birth, lying loose in the cavity of the uterus, is easily expelled by a little further expulsory effort. Although the uterus generally operates in this way, it sometimes remains inactive, more especially after laborious labours; and, in consequence of this inaction, the placenta is neither separated nor expelled, and this constitutes the next difficulty of which I propose to treat. Cases of this kind, in which the placenta is retained from the inertness of the uterus, may be recognised by the following indications: — the want of pains — the softness and large size of the womb, as felt through the abdominal coverings — and the failure of the descent of the cord when gently pulled. When properly managed, they generally terminate favourably, more especially if there be little or no flooding; but if the accoucheur lay hold of the cord without reflection, and pull the placenta, an inversion of the womb, and perhaps a fatal flooding, may be the consequence. In cases, therefore, in which the womb is inactive, it should be your first object to secure contraction of the uterus, before you take away the placenta; and for this purpose you may wait for half an hour, or an hour, compressing the uterus with the hand placed above the symphysis pubis. When the womb is contracted it will feel firm and hard, and something larger than the head of a full-grown fœtus; and when these indications are observed, you may proceed immediately to the abstraction of the placenta, which may be removed without further difficulty. If the womb be indisposed to contract, although you have waited for half an hour, or an hour, you may then endeavour to stimulate it by some of the deobstruents formerly recommended, but these should not be needlessly tried. Beware of flooding — beware of inversion — beware of tearing the placenta, and leaving a part of it unobserved in the uterine cavity — beware of the needless insertion of the hand into the uterine cavity. It may sometimes be necessary to peel the placenta from the uterus by interposing the fingers, but this operation it is always desirable to avoid.

Three errors we are liable to incur in managing cases of retained placenta in all their different varieties. In the first place, when performing our operations, we may bruise, lacerate, or otherwise injure the softer parts by proceeding roughly; in the next place, we may persuade ourselves that the after-birth must be removed from the uterus, come what may, and, in consequence of this persuasion, we may persist in our attempts to remove it by manual efforts, when it would be better to desist; and, lastly, removing the placenta with difficulty, we may detach a portion by

laceration, and, neglecting to examine the placenta very carefully after its abstraction, we may leave this part unperceived in the uterine cavity. In dismissing this important subject, I must not omit to observe, that I have been called to one or two women, dead before my arrival, and that, on inquiry, I have been informed, that the birth of the child had occurred two or three hours before, that a flooding, not very copious, had taken place afterwards, and that moderate force only had been used to abstract the placenta. On examining the body in these cases, a day or two afterwards, I detected, in the uterus, a lobe of placenta, *not a coagulum*, about as large as a pullet's egg, but no laceration — no obvious contusion — no intelligible cause of death. Were these deaths the anomalous effects of moderate flooding, or of the retained portion of the placenta?

MONSTERS.

In practice we sometimes, though rarely, meet with fœtuses that deviate conspicuously from the ordinary make. These fœtuses have been denominated monsters, apparently because of our besotted predecessors, some who have undertaken the perilous task of forming human opinions, have been pleased to represent such morbid structures as portending something mysterious and alarming. A great fish has a large swallow, but superstition — grave, argumentative, insolent, arrogant, silly superstition, has a swallow — still larger; it enjoys a sort of omnipotence this way; nothing is too big for it, nothing too small: — Alas! poor human reason; — according to the mood of the mind, we may weep or laugh at thee.

The celebrated Buffon has divided these monsters into four different classes, those in which the parts are deficient; those in which they are redundant; those monsters in which the parts are misshapen; and those in which, although naturally formed in other points, certain parts are misplaced; and to these four classes, a fifth may be added, comprising those monsters which are of a mixed character; cases, for example, in which some parts are redundant and others wanting, in the same individual.

Of all these, the most important is that in which there is a want of the bones of the cranium, (basis excepted,) and where, together with the deficiency of bone, there is also a deficiency of the cerebrum and cerebellum, wholly or in a great measure. This monster it is which is called brainless. In the circle of my own obstetric acquaintances it has repeatedly occurred; it is not, therefore, very uncommon; and it becomes the more desirable that you should pay a little attention to it. It may not be amiss to remark here, when speaking of this monster, that not unfrequently it is born alive, and that it lives for a few hours after birth. When living, it admits of some curious observations; and should you ever meet with a case of this kind in the course of practice, insert your finger into the mouth to try whether it will suck, in order to know

whether the sensorial powers, which relate to these actions, are above or below,—whether they are in the spinal marrow, the medulla oblongata, or the brain.

Some specimens show a still greater deficiency. You will find the whole thorax, together with the head and shoulders, are wanting, the child consisting merely of the parts below, the abdomen forming a sort of cyst. Monsters of this kind are by no means so frequent as the former.

Another species of monster is deficient in its lower parts, the legs being wanting, so as to give it an appearance as if an amputation had been performed. Should a fœtus like this, deficient in the lower extremities, be lying across the pelvis, presenting by the arm, hip, or back, no small difficulty would arise in an attempt to turn it, and probably we should be obliged to resign the operation altogether.

I have in my possession a fourth monster destitute of the lower extremities; and, in place of them, there is a conical cyst of skin, containing cellular substance, and a piece of bone, this piece of bone being apparently the vestige of those bones which belong to the lower extremities.

I have a fifth specimen, in which both the lower limbs coalesce so as to form but one compound member, and the foot is placed in the retroverted position, the heel lying forward and the toes behind. This is a mixed monstrosity, consisting both of a deficiency of parts and a misplacement.

We also meet with monsters of the redundant kind; one of which resembles some of the august inhabitants of a Hindoo's goddery—(the allusion in this latitude is not profane,)—a *Brahma*, for example, deprived, as was his fortune, of one of his *three heads:* it has two faces, and they look in different directions. Specimens are met with, of rarer, though not very unfrequent occurrence, in which you have two bodies, with one head in common to both.

I have a third specimen, a very valuable obstetric curiosity, consisting of two fœtuses of full size, so finely formed, that any one might be proud to own the paternity; these fœtuses, however, though so beautifully modelled, are united by the thorax and abdomen. In fœtuses like these the abdominal cavity is, I suspect, generally common to both, so that if you were to endeavour to separate them by the knife, the abdomen would be laid open. Fond as I am of abdominal surgery, of this I do not approve. This specimen of monstrosity becomes particularly valuable, because it came away from a woman who had borne a large family previously, occasioning merely a small laceration of the perineum, the children descending under the foot presentation, and the head of the one being deposited on the neck of the other, during the transit through the pelvis. The one fœtus is placed a little below the level of the other, and the head seems still inclined to repose upon the neck of its companion.

Into the causes of monsters, as the subject is rather physiological than obstetric, I forbear at present to inquire; suffice it to observe, that monsters sometimes, if not always, are of very early formation, produced within a few months, or perhaps, in some instances, within a few weeks after the commencement of gestation.

Monstrosity is not confined to the human subject; animals are liable to monstrosity, and none, perhaps, more so than pigs. Blumenbach thinks that the domesticated are more obnoxious to this disease than the wild varieties.

I was indebted to Mr. Dent for an engraving, from which I took a pencil drawing, of a Hindoo monster of very rare occurrence. The child, as I was informed, was of healthy make enough in other particulars, but it was possessed of two heads, united vertex to vertex, with a deficiency of bone at the place of contact; vessels passing from the one to the other, and the superior evidently nourished and supported, as to its vitality, by the inferior head; a neck of rude form surmounted and terminated the second head. Of this monster it is very remarkable, that it lived for some years after birth, and was exhibited in the Indies. I was told, too, but I have not been able to ascertain this with perfect authenticity, that when the child laughed or cried, particularly if the mind was greatly agitated, both countenances were affected at once. What a subject for polemical psychology! In an age of folios, a hundred weight of controversy might be written upon it — and why not? No harm need ensue; at the end of the debate, each party might continue to hug his own opinion. After all, however, in a metaphysical or moral point of view, perhaps there are few monsters more interesting than this.

Of misshapen monsters, and those in which the parts are misplaced, I make no further remark, because, in a view to practice, they are not of much importance; the two classes principally interesting are those which I have already described, consisting of the deficient and the redundant, of their management I now proceed to treat.

If it should so happen that you have under your care a case in which the parts are deficient, provided you adhere to some of those wholesome rules which have been prescribed in these Lectures, you will experience but little difficulty in the delivery. Even if you know that there is a deficiency — a monstrosity, it does not follow that you are, in a meddlesome manner, to interfere. A meddlesome midwifery is bad; give a fair trial to the natural efforts, and the child being smaller, instead of larger, in consequence of this defect of parts, it will come the more easily away.

In cases of redundancy, moreover, the child may be very strangely formed, and yet, after all; it may come away from the uterus with very little assistance from the accoucheur. It sometimes happens, that the pelvis of the patient is very large, and still more frequently it happens, where fœtuses are of monstrous formation, that they come away in the sixth or seventh month; and in this way, therefore, their multiplicity of members is com-

pensated by their small size, and the conformability of their soft texture. Were I called to a case in which I knew there was a redundant monstrosity, and where there were two fœtuses formed, I should, in the general, give a fair trial to the natural efforts, say for four-and-twenty hours, unless some dangerous symptom obviously demanded delivery; and if dangerous symptoms occurred, or if the patient had been in strong pains for four-and-twenty hours, the monster not descending, I should then have recourse to the lever, the forceps, or perforator; either the one or other instrument, according to the circumstances of the case.

The surgeon who had under his management the case I have described, in which the two fœtuses, of full size, in all respects well formed, with the exception of their thoracic and abdominal junction, perceiving something monstrous in the construction of the fœtus, deemed it necessary to do something to facilitate the labour. To this end, therefore, he took a pair of scissors, and tried to cut away the lower part of one of them, a very rough expedient, in which he was unsuccessful; he then waited, and the consequence was, that the delivery which he could not accomplish was completed spontaneously by the natural efforts of the uterus; the fœtus coming away with only a small rent of the perineum, so that in those cases you are not rashly to despair and give up all expectation of a natural delivery. As in every other case, so here, a meddlesome delivery is bad; give, therefore, a fair trial to the natural efforts, and if dangerous symptoms supervene, or if the labour make little or no advance under a full action of the uterus for four-and-twenty hours after the discharge of the waters, you may then properly enough have recourse to your instruments, to be used in the way I have already explained at large.

CONVULSIONS.

Convulsions from pregnancy or delivery are by no means common; yet this case we occasionally meet, and great danger attends it. When a patient becomes the subject of convulsions, she may be seized without premonitory symptoms; these, however, sometimes occur, and more especially in the convulsions of pregnancy. Tremors of the whole muscular system, with shudderings, cramps, and pains felt in the region of the stomach, cerebral afflux of blood, flushing of the face, throbbing of the carotid arteries, severe and splitting pains of the head, stammering and failure of utterance, constitute some of the leading prognostics. Sometimes the patient becomes deaf, more frequently her sight is affected, and dazzled perhaps with light, or blinded. When the fit supervenes, the woman becomes entirely insensible, and, together with this insensibility, she has a violent commotion of the voluntary muscles, and the arms and legs are agitated, the features flicker, the eyes are distorted, the tongue is involuntarily pushed forth from the mouth, and perhaps there is a spasm of the levators of the jaw, which closes the teeth, and wounds it. A cork well secured be-

tween the teeth may sometimes prevent this. Respiration is affected sometimes, and the patient may breathe with a sort of hissing noise, as has been well observed by Denman, so that in the next chamber you may hear her breathing. Foaming is by no means uncommon; and this foam being not unfrequently mixed with blood, gives to the patient, in the eye of friends, an alarming and even terrific appearance. When these attacks have continued for a few minutes in different cases, a longer or a shorter period, we find the patient recovering more or less completely. In most attacks of convulsions, where the attack is not severe, the spasms ceasing, the patient seems very well, awaking up as if from a slumber. When asked how she feels, she replies, perhaps — Well! nor is she aware of the attack to which she has been subjected. It is not always, however, that the recovery is complete. Sometimes the patient lies apoplectic, or in a state analogous; or she is deaf or blind, or incapable of speaking, or both; or the limbs are benumbed. In fine, it seems as if the sensorium had received some permanent injury, the corresponding parts of the body suffering in consequence.

In practice, I find it useful to divide convulsive cases into three kinds or varieties, according as they occur after parturition, during labour, or in the progress of gestation. Two cases I have now seen, in which the attack of convulsions supervened after delivery, one of the patients doing perfectly well notwithstanding. Of these cases, one was shown to me by my friend Mr. Gaitskell, and large bleedings completely cured her. The second was shown to me by Mr. Masterman; large bleedings were resorted to here, but the patient never recovered, and, in a few hours, died. Inspection was refused. I suspect that these attacks of convulsion, after expulsion of the fœtus, are more dangerous than those attacks occurring during the time of delivery.

In laborious labours, or in preternatural or natural parturition, convulsions still more frequently occur; and, in these cases, a paroxysm of convulsions sometimes accompanies every pain, so that if the pains thicken, the convulsions multiply: and hence, in these cases, if, during the fit, you lay your hand on the muscles of the abdomen, you will find them very hard; if you place the finger in the os uteri, you perceive dilatation and the advance of the fœtus. Be at the bed-side, therefore, in these convulsive cases, and watch; for as the paroxysms return, labour may advance, and the fœtus may suddenly emerge.

We sometimes meet with patients prone to cerebral afflux; and, in those persons, convulsions are occurring in the middle and earlier months sometimes, but still more frequently in the end of pregnancy. When convulsions attack a patient in the progress of gestation, she may have a single fit only, or several, the intervals being usually irregular and somewhat long, not of a few minutes only, but of hours perhaps, or days. When first the attack occurs, on making examination, it may be that you do not find a single symptom of labour, the fœtus is unapproachable, the uterus shut,

and there is a perfect freedom from uterine pains. Sooner or later, however, if the fit continue, parturition of itself commences, without the interference of the accoucheur; and the womb opening, and the membranes protruding, and the liquor amnii flowing, a sudden emersion of the fœtus occurs; and this may happen, not only where the patient has pain, and can give an account of her feelings; but in those cases also, in which the disease is associated with apoplexy, so that, during the whole time the woman is either comatose or convulsed; and hence it sometimes happens, (and let this be remembered,) that under convulsions delivery may take place unknown to the attendants, the child perhaps being, of consequence, suffocated in the bed. In these cases, therefore, you should give directions that the patient be strictly watched, and that, on the first appearance of blood or pains, obstetric assistance may be summoned.

A lady, in the end of her pregnancy, was seized with convulsions, her attendant was sent for, and decided that there were no indications of labour, and that a stay was unnecessary. Quitting the house, then, the midwife returned on the morrow, it was early in the morning, when the patient was found dead; the child, too, the birth of which no one seems to have suspected, lay lifeless beneath the clothes. In managing human affairs, men have done so many foolish things, that they have no claim whatever to treat with severity the errors of women; allow me, however, to remark, that, in this instance, the error, a great one, was committed by a female practitioner.

Convulsions being a very alarming disease, a variety of remedies have been recommended, every one being laudably anxious to interpose some relief, in cases of so much danger. To avoid confusion, however, I am accustomed to divide these remedies into two classes; the first comprising those which constitute our principal reliance; the second, those which, though not to be forgotten, may be regarded as of small importance. In an affection like this, which requires promptitude and decision, it is of the greatest importance to keep your minds fixed on the leading and principal remedies, careful not to lose yourselves in the administration of those remedies which can have but small effect upon the disease. It is now well agreed between those who have seen much of this formidable malady, that a main remedy is the abstraction of blood from the vascular system, as largely as the patient may safely bear. So long as the line of prudence is not exceeded, the more largely you bleed, the better; not that these copious venesections are wholly unattended with danger, but that the convulsions themselves are so formidable and urgent, and the power over inanition is, in the present state of our knowledge, deemed to be so great, that the risk may be reasonably incurred, in order to give the patient this chance of recovery. Twenty, thirty, forty, fifty, sixty, or seventy ounces of blood, have sometimes been taken away from a woman of ordinary stature and moderate plethora, in the course of six or twelve hours. I once myself abstracted from a patient

seventy ounces of blood, in the course of two or three hours, and she did not ultimately suffer from inanition; I was with a medical friend at the me; I tried the smaller bleedings, but they were ineffectual; this patient recovered. Be stedfast in these cases, but not rash: — we little know how many under disease perish by large bleedings, the lance has killed its thousands, and the lancet . . . . . Timely transfusion may, perhaps, hereafter diminish the number of these victims.

In these cases, I repeat it, be stedfast, but not rash. Watch your patient diligently. If the smaller abstraction — if, for instance, a bleeding of twenty or thirty ounces be sufficient, let this content you; but if you find the convulsions continue, and the afflux of blood remains, with due prudence your bleedings must be repeated.

There are different ways in which this blood may be abstracted, two modes being the most convenient; the venesection of the arm, and that of the external jugular vein; the latter being an operation which all ought to be able to perform with dexterity. Venesection of the jugular is peculiarly advantageous, because in this mode of operating, you take away the blood from the head. More frequently, however, patients are bled from the arm; and as our purpose is to relieve the vascular system generally as well as the head, for that is the principal object, those bleedings from the arm may do very well. After brachial venesection, you ought to bind the arm with more than ordinary care, because, if you apply the bandage with inattention, a large quantity of blood may issue from the wound, in consequence of a displacement of the bandage during any subsequent struggles. Bleedings from the arm are more likely to occur, than bleedings from the neck. Repeatedly those bleedings have taken place, in consequence of detachments of the dressings; and, I believe, it was the observance of the benefit derived from these large accidental bleedings, that first led practitioners, within the last few years, to resort to copious venesections. Remember further that, in order to have the full benefit of your bleedings, you must adopt them early. Hours — nay, minutes, are not without their importance here. In cases of this kind, blood may be effused on the brain; and I know that water is found sometimes both on its surface and in its ventricles. Now, when these effusions have occurred, there is little to be expected from the bleeding; but so long as the fluids are contained in the vessels, venesection, if large and early, will be powerfully effectual. Does arteriotomy possess peculiar advantage in convulsions?

In convulsions, again, there is a second remedy which I wish you to look upon as of very great importance, viz., the thorough evacuation of the alimentary tube — the stomach, I mean, and bowels. In some cases, indeed, the patients lying comatose do not easily swallow; but, in most instances, if you watch the proper moment, deglutition may be accomplished. *Senna* and *salts*, a smart dose of *calomel*, the *croton oil*, &c., may be thought of in

these cases. Senna and salts will answer perfectly well, where the patient can swallow; calomel and the croton oil may have the preference, provided you want to give a dose that lies in a very small compass. Powerful purging may be produced, by rubbing over the tongue the cork of the croton oil bottle. Should gastric aperients fail, after a trial of three or four hours, injections into the rectum may be tried with great propriety; and these remedies are more especially useful, when they are superadded to purgatives, taken by the mouth, some few hours before. Two or three scruples of the compound extract of colocynth, half a pint of water, and as much soap as will blend the whole, may be thrown into the rectum every half hour or hour, till it acts. Further: where patients are seized with fits of convulsions, and you have bled them, if there is anything wrong with the stomach, you may give an emetic. The *sulphate* of *zinc* is rather a rough remedy, but its promptitude recommends it; and these are cases in which no time should be lost. *Ipecacuanha* is a medicine that may, in most instances, be given safely; and a drachm of the powder being mixed with two ounces of water, and shaken, one quarter of this mixture may be administered every twenty or thirty minutes, till it acts. Here, then, is a second remedy fitting in convulsions, a thorough evacuation of the alimentary tube, more especially proper in those cases which tend to the chronic form.

When patients are affected with convulsions, you will generally, if not always, find symptoms of a cerebral afflux of the blood; the carotid arteries are thumping, the scalp is hot, the face is larger, and the features suffused and bloated. Hence the importance of another capital remedy in convulsions, I mean the complete refrigeration of the head. A chordee is promptly relieved by plunging into water; the arteries are quieted, and the parts collapse; in like manner, if the patient labour under cerebral turgescence, produced by an increased action of the carotids, apply cold water, and the action may sink. There are different modes in which the head may be refrigerated, and, provided you accomplish the object thoroughly, I am careless how you proceed. In ordinary cases, on urgency, you may, if you please, with the hearth-brush and cold water, very plentifully sprinkle the head and neck of the patient. If the case be more obstinate, it may be necessary to remove the hair; but as this is looked on by young ladies as a very agreeable ornament, it ought not, I think, to be wantonly sacrificed. Should this refrigeration fail, you may apply *ice*, which, in this metropolis, may be commodiously bought by the pound at the fishmonger's or pastry-cook's. Expel the air from a bullock's bladder, and half fill it with the ice; it may then be applied to the head in the manner of a cap. You may also refrigerate the head very much, by pouring cold water upon it, and this, in some very bad cases, has been done with very great advantage. You draw the patient's bust beyond the bed-side, and placing a tub, or reservoir, beneath the head and shoulders, with a proper vessel, you

pour water on the head till the features shrink, and the scalp is thoroughly refrigerated. I know of one or two cases in which two or three pailfuls of water were poured over the head with advantage. The practice, like the disease, is a very rough one, but ought not to be lost sight of; it is a sort of homely shower-bath. In one or other of these modes, then, by sprinkling, by icing, or by pouring water on the bust, the head is to be refrigerated; resolutely beat down the action of the cerebral vessels, and you may thus diminish the quantity of blood in the head.

But here you will ask, is there no other remedy to which we can have resort? — Bleeding, purging, and refrigeration, is this all? — Is it not further proper, in *all* cases, to *deliver* the patient? No, it is not; and it is, I believe, an ascertained fact, that more women die when they are officiously delivered by force, as it is called, than when they are committed to their own resources. That delivery is a powerful remedy in convulsions, there can be no doubt; — after the fœtus is expelled, the convulsions usually cease — but this remedy requires much discretion.

The rules with respect to delivery lie principally here — a meddlesome midwifery is bad — this is the first article of the obstetric creed; if, then, you can relieve your patient by bleeding, purging, and refrigeration, it is not fitting that you should have recourse to artificial delivery; exceptions there may be, but this is the general rule. In considering, therefore, what convulsive cases are fitted for delivery, we may, in the very onset, reject all such cases as admit of relief by other means.

When convulsions occur, the condition of the ovum, with respect to delivery, may vary, for sometimes the head of the fœtus may lie so low, and the parts may be so lax, that, without difficulty, it may be removed by the forceps. In other cases, the child may be altogether above the brim, and yet the mouth of the womb being capacious, the parts lax, and the uterine fibres continuing at rest, it may be neither dangerous nor difficult to deliver by turning. Nor must it be forgotten, that in those cases, in which the convulsions occur in the latter or middle months, at the commencement of the disease especially, the womb may be firmly shut. Now, these considerations premised, let us suppose that you have one of those undesirable cases, in which delivery is indicated, inasmuch as other remedies — bleedings, purgings, refrigerations, have been tried without effect. What remains to be done? Why, if without bruising, tearing, or otherwise injuring the genitals, you can abstract the ovum, do so, if you please; but if you find the case is such that you cannot deliver without risk of injury, then leave the system to its own resources, for in my mind it is far better (and I should wish this principle to be acted upon in my own family); I say, it is far better that the woman should die convulsed in the hands of nature, than that she should perish by the cruel and savage operation of rough and unskilful midwifery.

In those cases, where delivery is not to be accomplished without the risk of contusions and lacerations, you should still keep a close eye on the case, making frequent examinations, say every half hour or hour; for, as in floodings so in convulsions, sudden and extensive changes occur in the condition of the parts; and though in the morning you may not be able to deliver the patient, yet in the evening you may find the delivery easy; nay, in half an hour only, in some cases, a great change may occur, and when circumstances conduce, the delivery should be with promptitude accomplished.

Here, then, are some general principles, which, combined with the observations I have made in preceding lectures, may keep you near the right line of practice in these distressing cases. Let it be your first principle not to deliver artificially, provided you find the convulsions may be subdued by other means, unless, indeed, in those anomalous cases in which the ovum may be abstracted without the least difficulty. In those cases in which bleedings, purgings, and refrigerations fail, and where delivery is to be looked upon as the only remaining effectual remedy, let it still be your principle to have recourse to delivery in those cases only in which the abstraction of the fœtus may be easily and safely accomplished, since death from convulsions is preferable to death by the hand of the accoucheur. Lastly, if delivery is desirable in consequence of the failure of the other remedies, should the state of the parts forbid it, you will act wisely in making repeated, though cautious examinations, (since sudden and favourable changes may occur,) completing the delivery by artificial means, if necessary, as soon as circumstances conduce. I conclude this topic by remarking, that I should be sorry to undervalue the efficacy of delivery in these cases; but moderation is profitable in all things, and I cannot bear to hear of delivery by force. *Arte, non vi.* In a scientific midwifery, force has no place. Some practitioners seem to be too fond of the turf.

LECTURE XXXII.

CONVULSIONS.

Having already enumerated the leading remedies of convulsions, we must not forget to remark that there are other means of subordinate importance, of which we ought not to lose sight in the treatment of this formidable malady. *Leeches* to the temples are generally innocent, and if we apply fifteen or twenty, they may, perhaps, sometimes, be productive of considerable benefit. A fit of convulsions, with *cupping-glasses* upon the patient, would be

very incommodious; if you choose, however, cupping may be tried between the paroxysms. If the disease be obstinate or pressing, the head may be shaved, more especially if the scalp be hot; but an operation of this kind need not be wantonly recommended. Of blisters to the legs I have made but little use; in the opinion of some, the practice is of real efficacy, and, therefore, should not be forgotten. *Rubefacients*, especially of *mustard*, to the feet, and more particularly where the woman is comatose, should not be neglected. The *warm-bath* I should more frequently recommend, if it could be employed in private practice, as commodiously as in puerperal hospitals. By Denman it is, I think, remarked, that some women have remained free from fits during immersion only, and that they have actually been delivered in the water. *Nervous medicines*, as castor, camphor, æther, valerian, opium, or the like, are not to be overlooked. If opium determine to the head, it will probably do mischief; if it open the cutaneous pores, and diffusively support the circulation, advantage may be expected from it. Dr. Hamilton has strongly recommended camphor. If the tongue be thrust at intervals between the teeth, it should be secured by interposing a cork enclosed in cloth, as recommended by Burns.

PREVENTION OF CONVULSIONS, AND LABOURS COMPLICATED WITH TUMOURS IN THE PELVIS.

The convulsive paroxysms are sometimes making their attack without any very obvious premonitory symptoms, and yet in other cases, and more especially when the disease assails the patient during pregnancy, these precursory indications may be now and then observed. Shudderings of the muscles generally, flushings, and fulness of the face, throbbing of the carotids, heat of the scalp, very severe and splitting pains of the head, and a sensation, perhaps, as if the cerebral mass were too large for its receptacle; these, with weight in the head, impeded utterance, altered vision, numbnesses, or the like, are some of the more striking symptoms by which the fits are preceded.

When these symptoms occur, and you are led to expect that the patient will be seized with convulsions, it comes to be an important consideration, whether there are any *preventive means*, by which the fit may be intercepted? *Bleeding*, I have observed already, is one of the most powerful antispasmodic remedies when the fits are begun, and it deserves, therefore, a fair trial as a preventive. Blood may be taken from the nape of the neck, from the external jugular vein, or from the arm, to the amount of twelve, fourteen, or sixteen ounces, more or less, according to the symptoms, it not being necessary to bleed so copiously in this preventive treatment, as where it is your object to subdue an attack which is already commenced. The readiest mode, no doubt, of removing the blood, is by means of the lancet, and in ordinary cases this may be preferred; but if you are disposed to take the

blood from the nape of the neck, cupping-glasses are to be employed, or a large number of leeches may be applied to the temples. The object of this bleeding is not merely to diminish plethora, but to reduce the action of the vessels of the head; the carotid arteries, I mean, and the vertebrals; and I incline to the persuasion, that the action of the vessels is reduced more effectually by a given quantity of blood abstracted with leeches, than it would be by the same quantity of blood abstracted by means of the lancet or the cupping-glass.

Of great importance, also, it is, where you expect an attack of convulsions, that you clear thoroughly the alimentary tube. After bleeding, ipecacuanha, or any other mild emetic, may be given with advantage; and more especially if you believe there is any offensive accumulation in the bowels, by means of purgatives or injections, you should thoroughly cleanse the canal. Castor oil, senna and salts, rhubarb, or calomel, may be given, and if you wish the medicine to operate with promptitude, salts and senna. Twofold is the advantage of this purification of the tube by means of purgatives; you cool the system somewhat, more particularly if you employ the saline preparations, and this tends to reduce the vascular action; add to which, that, by clearing the tube, you are carrying out of the system something that is irritative, and calculated to keep up the vascular movement, together with the determination of blood on the head. Every one who has experienced a fit of dyspepsia, must know, that by it the severest headache may be produced, and every one who has made the diseases of children the subject of his attention, must be aware how close is the connexion between a disordered state of the bowels and the state of the head. After clearing thoroughly the alimentary canal, and abstracting that portion of blood which you may deem expedient, you may put your patient into a warm bath, a remedy more easily managed, where the patient has not yet been attacked with a fit. Get a large vessel, let the water be heated to 97° of Fahrenheit's thermometer, (the cold and warm water being well mixed with each other,) and there let the patient remain ten, fifteen, or twenty minutes, according to the soothing effect produced. Experience has shown the use of warm baths in convulsions, whether of women or young children; nor is theory wanting to their recommendation, for the bath seems well calculated to relieve the head, inasmuch as it operates as a diffusive vascular stimulus, and produces perspiration.

For the prevention of convulsions, these are the remedies on which I should myself mainly rely; the moderate abstraction of blood, the clearance of the alimentary tube, and the putting the patient under the bland and soothing influences of the warm bath. Nervous medicines are advised, and must not be forgotten, though Denman says, and I think truly, that they are rather given from custom, perhaps, than in the expectation of any solid advantage to be derived from them. Opium and camphor have been recom-

mended, — camphor strongly. Of opium I have given the opinion which I entertain in the present state of my knowledge; if it equalize the circulation, benefit may be expected; if it stimulate the brain topically — injury.

If a woman have had two or three attacks at some former period, so that the premonitory symptoms are more than usually alarming; it might be worth considering, whether, in a case so pressing, delivery ought to be accelerated. Of turning the child by force, you must not even think; violence in midwifery is the unpardonable sin which may not be forgiven; but if you can carry the fingers to the mouth and neck of the womb, so as to touch the membranes, these may be punctured with a sound bluntly pointed, and in four-and-twenty, or six-and-thirty hours afterwards, the ovum would most probably be expelled. My own opinion with respect to delivery, in the way of *preventive* treatment, is this: if bleedings, purgings, and the warm bath, subdue the symptoms, do not, as a general practice, interfere with the uterus; but if you have a case where the ordinary means fail, and where the convulsive attack is in a high degree probable, then it becomes justifiable to puncture the membranes, and discharging the liquor, an operation not perhaps without its evils, but still very simple, and, as far as the woman is concerned, safe.

When the management of this disease was less understood than it is at present, and more especially when it was customary to deliver by force — under convulsions, death, both of the mother and child, were by no means unfrequent, whence frequent morbid dissections were made. Now, it is well worth your notice, that in the great majority of those fatal cases which have been submitted to inspection, there has been no observable effusion of blood, whether upon the surface of the brain, or in its substance. Effusions of water, I believe, from my own observations, are in these cases more common; and if a woman have a repetition of fits, I should expect to find water on the surface of the brain, between the meninges, not to omit the ventricles of the brain, and the spinal theca. In general, women seem to die at a time when there is simply a *congestion* of blood, which remains in the cerebral vessels, or with congestion and aqueous effusion conjoined; and very satisfactory it is to know this. If a large quantity of blood is poured into the brain, or upon it, in general it is all over with the patient; now and then, perhaps, by spontaneous process, the patient may recover, but I am convinced that *medical* treatment can then avail but little; if, however, the blood be still contained, as it usually is, in the vessels, the bleeding relieving this surcharge, you may remove that pressure which is, I conceive, a more immediate cause of the disease, and thus perhaps you may save the patient. Denman says, that in most of the cases which he has met with, he found the heart unusually flaccid, and without a single drop of blood in the auricle or ventricles; adding, too, that in other cases, many large livid spots have been seen on the surface

of the body. A case was reported to him by Hewson, in which, after death, much blood was found upon the brain; and another case was reported by Hooper, in which the patient died in eight hours after the fit, the effusion of blood weighing, I think, three or four ounces.

Having given you the treatment, and the characteristic history of this disease, I shall not enter largely into its causes; and the rather, because disquisitions of this kind are usually involved in night and chaos, but a few remarks I will venture. Should you ask me, then, in what manner these convulsions are produced, I should reply, that the more probable and immediate cause of them is a pressure on the brain, and perhaps on the spinal marrow also. This pressure sometimes results from the effusion of blood, still more frequently from effused water, and, most frequently of all, from mere congestion. If you were to ask me how it is that these congestions of blood are produced, I should reply, not in most instances by general plethora, but rather from an increased action of the cerebral vascular system, the carotid arteries, and perhaps the vertebral; indeed, in the adult, if we examine the carotids, we may sometimes see the pulse beating and jumping in the neck. Whether men are but children of a larger growth, I do not stay to inquire, but I am sure that *women* are —at least in constitution. Now, that the convulsive and hydrocephalic affections of young children are connected with an increased action of the cerebral vessels, is certain. In young children, by placing a finger on the fontanel, you may examine the cerebral circulation more readily than the circulation in the wrist. Now, where there is a disposition to convulsions, or hydrocephalus in infancy, on putting your fingers upon the fontanels, you will often find that the brain is beating most strongly; nor is it necessary to touch it for this purpose; or if we take off the cap when the vessels are in action, the pulsatory play of the brain may be seen distinctly by the eye. An increased action of the vessels produces an accumulation of blood in the genitals, in the wattles of birds, and in the breasts of women during suckling; and these points considered, it is not, I think, improbable, that in these convulsions and convulsive propensities of women, a cerebral congestion, with pressure and irregular circulation, and an increased action of the carotid and vertebral arteries, has a large share in producing the disease. In support of these opinions, respecting the more immediate nature of puerperal convulsions, the following symptoms may be also stated; the flushing of the face, the throbbing of the carotids, the enlargement of the features, the heat of the scalp, not to mention other symptoms which are premonitory of the disease, and which seem to indicate afflux of blood upon the head. Hence, too, the help derived from large bleedings, especially from the cephalic vessels.

In concluding my remarks on the causes of convulsions, I may add an observation which I once accidentally made on the dog, and which seems to me well fitted to illustrate the cause of those

affections. Anxious to know, in the dog, what are the utmost powers of circulation by anastomosis, for this purpose I contrived an instrument, by which, in this animal, I could close or open the thoracic aorta at pleasure, when, I found, among other observations, the following facts worth notice : — If I bled the dog before I tied the aorta, he lived for some hours; but if I secured the artery without a previous bleeding, he had an attack of convulsions resembling very much the puerperal convulsions of women, and this attack could be relieved or renewed by opening or closing the aorta. When I opened the dog, I discovered, on the surface of the brain, a few small clots of effused blood not much bigger than a pea. And the explanation of the phenomenon was this: when the aorta was tied, it collapsed below the ligature, and emptied itself into the *vena cava*, then the blood came in large quantities from the cava through the right side of the heart, and the lungs into the left side of the heart, and the aorta, so as to reach the ligature by which its further progress was intercepted, so that it could not make its entrance into the parts below, or behind the thorax. As in convulsions, therefore, so here, — the blood accumulated in the upper or anterior parts of the system, and convulsions and death were the result.

The prognosis of the convulsions is rather favourable than otherwise; certainly it is a most alarming disease, and, if blood be effused on the brain, death is very probable, not to say desirable; if, however, you are early in your operations, and treat it actively upon the principles I have laid down, I think you may generally subdue it.

APOPLEXY, ETC.

In the end of gestation, patients are sometimes attacked with apoplexy, in which condition they may lie for hours, or days, recovering gradually afterwards, or ultimately sinking. Under apoplectic attacks, I believe, labour does not so readily come on as under the convulsive attacks; nevertheless, I would advise you to examine the os uteri occasionally, and to take care that the child be not born unperceived. In its nature, though there are no spasms, I look upon this disease strictly as analogous to the convulsions of which I have been speaking, and I would, therefore, treat it upon the same principle. I suppose it is produced, in good measure, by congestion of blood in the head. Sudden deaths sometimes occur during delivery; their cause may not be always intelligible, even on dissection: apoplexy — rupture of the heart, or large vessels — and bleeding into the abdomen, are to be suspected.

LABOURS COMPLICATED WITH TUMOURS IN THE PELVIS.

It does not frequently happen, that delivery is complicated with large tumours in the pelvis, an accident which is sometimes fatal. We do, however, sometimes find that these tumours concur with

delivery; and when met with they may be commodiously divided into two kinds, those I mean which are *recto-vaginal*, being placed between the rectum and vagina, as the term implies, and those again which are otherwise situated. It sometimes happens, that a large exostosis grows upon the sacrum, an accident which is not common, though occasionally large quantities of bone are formed upon this part. A case of this kind is to be managed precisely upon the same principles as those distortions, or contractions, of the pelvis, which we considered under the head of laborious labour, and I dismiss them, therefore, without further remark. In other cases, we find that a *calculus* is lying in the bladder, and this, perhaps, of no small size; Mr. Tipping, of Tooting, once showed me a urinary calculus considerably larger than a goose-egg. Urinary calculi, concurrent with delivery, are, however, by no means of frequent occurrence; if known before delivery, they ought to be taken away, as likely to obstruct delivery. We know that calculi may be removed either by cutting into the front or back of the neck of the bladder, or by dividing the urethra; but, in cases of this kind, removal by mere dilatation would be desirable. Here I may be permitted to remark, that this practice, now generally received, of removing the calculus by dilatation, has always been recommended from this chair; it was strongly advised by my predecessor, Dr. Haighton, and year after year it has been as strongly recommended by myself. Why did not some of you, who are surgeons, take the hint, and get the honour of introducing the operation into use? Sir Astley Cooper, in whose mind, I believe, the idea was of native growth, though anticipated, needed no addition to his large and well-earned fame. It has always appeared to me, that the brevity of the female urethra, and the exceeding laxity of it, were extremely favourable to dilatations of this kind, nor has the event falsified the opinion. But what is to be done if the calculus remain undiscovered in the bladder till parturition begins? If the calculus be small, we may allow the head to pass, the accoucheur not meddling, as meddlesome midwifery is bad; but if the calculus be large, and likely to obstruct the passage of the head, then it would be advisable (if practicable) to urge the stone away from the brim of the pelvis.

If, again, a calculus obstructing delivery could not be got rid of in this way, it would then, I conceive, become necessary to open the head, or the bladder, or the urethra, and of these practices, probably the most advisable would be the removal of the calculus.

It sometimes happens, again, that you have tumours growing to the *sacro-sciatic ligaments*, and Dr. Drew has recorded two cases of this sort, for which I am indebted to a very able obstetric writer, I mean Burns. In one of these cases a large tumour grew on the sciatic ligaments, completely obstructing the outlet of the pelvis. In this case, new to the accoucheur, nothing was done, and both the mother and child died. In the other case there was

a tumour on the sacro-sciatic liganients, weighing about two pounds and a half, and Dr. Drew, considering the tragical event of the former, thought it his duty to extirpate by cautious dissection, when both the child and mother were saved. In these cases, then, the proper practice is obvious. Thus much, then, respecting the tumours in the pelvis, of rarer occurrence, arising from exostosis of the sacrum, calculus of the urinary bladder, or large indurated growths upon the sacro-sciatic ligaments.

But I must now observe to you, that there is another tumour in the pelvis, certainly more common in its occurrence, and perhaps more dangerous in its effects, and this is the recto-vaginal, the tumour which takes its place between the vagina and the rectum, and which may arise from various causes. Between the vagina and the rectum, water will sometimes accumulate, (as in cases which I have examined in the other hospital,) forming large swellings there ; these pretty readily yield under pressure. Sometimes, again, the intestines become interposed between the vagina and the rectum; and sometimes, though not frequently, the lymphatic glands, I suspect, enlarge at this part. Most commonly, however, nor let this be forgotten, when these recto-vaginal tumours form at all, they form in consequence of an enlargement of the ovarium; in nine cases of ten the enlargement is of this kind. These ovarian enlargements are not uncommonly the result of incipient dropsy; they may also be occasioned by scirrhus, or by a formation within the ovary of parts of the fœtus, as teeth, bones, pulp, quantities of hair, or the like. Not to dwell on these niceties, however, it may be observed, that in a view to practice, ovarian tumours may be divided into two varieties, the solid, I mean, and those which contain pulp, or water ; and it is said, that with the ovary a fold of intestine may descend, so as to form a compound enlargement, partly ovarian, and partly gaseous and intestinal. I will suppose that you are called to a case of recto-vaginal tumour ; and that, upon making your examination, you find the outlet of the pelvis closed, the vagina lying before the tumour, and the rectum behind it : what is to be done here ? If you are called to the labour early, before the child's head is forced down in the upper part of the pelvis, as those tumours do not, I think, in general, adhere firmly, or, indeed, do not adhere at all by inflammatory cohesion, you may sometimes succeed by urging them above the brim of the pelvis ; and of all the modes to be resorted to, this, when practicable, is the best. But what if this attempt fail? nor is failure improbable. If the tumour be yielding, and its bulk be small, give a fair trial to those natural efforts, which the accoucheur never hastily distrusts, and the head perhaps may work its way through the pelvis, the tumour collapsing or bursting, or gradually ascending above the brim. Again, if you think that there is no reasonable hope that the head will work a way for itself, there is yet a third practice to which you may have recourse, I mean the emptying of the tumour. If the tumour

be solid, of course the practice is inadmissible; but if it is filled with gelatinous matter, or with water, in such cases an evacuation of it may be effected. To open the tumour from the rectum, we have been advised; but I conceive the vaginal opening is preferable, though I know the rectum will bear a good deal of violence without fatal result. It has been recommended, too, to lay the tumour open by the trochar and canula, and if water is pretty certain, you may proceed in this manner — introducing the instrument at the most depending part of the tumour, and recollecting that a fold of intestine may lie in the way, should you meet with water, then you may readily evacuate it, and should the substance which escapes be of viscid consistency, by little and little you may enlarge the opening with a scalpel, so as to give a broader vent. Should it be doubted whether the swelling be solid, or filled with water or viscid matter, you may cautiously cut down with the scalpel till the point is decided.

Here, then, are the three leading practices which the recto-vaginal tumours admit; the pushing the tumour above the brim of the pelvis, the suffering the head to work its way spontaneously, and the opening of the tumour, whether by puncture or incision. The practice of laying open the head in recto-vaginal tumours, I believe to be bad, because, after this is accomplished, if the tumour be moderately large, you may still be unable to get it away. We have been advised further, and this measure may be sometimes necessary, to lay open the head, and the tumour too. In general, if the tumour is encysted, I should hope that, to lay open its cavity, would supersede the necessity of the use of that formidable instrument, the perforator. The application of the forceps in these cases is an excellent topic of obstetric chit-chat; but unless the tumour be exceedingly small, you may scarcely hope to accomplish the delivery by the use of this instrument. If you want to kill your patient, turn the child by all means; cram your hand up into the vagina, lacerate the womb, haul down the legs, tear the head off the body, and then perform the Cæsarean operation to extricate the head from the womb. This is coarse language, but the practice is coarser.

It has been advised, in some of those cases, to perform the Cæsarean operation; and I do believe that, in some instances of recto-vaginal tumour, the Cæsarean operation, dangerous as it is, might be the safest proceeding. Still, however, I closely adhere to the general principles of British midwifery, that the Cæsarean operation, in the present dangerous modes of performing it, at least, ought never to be attempted, if delivery, however difficult, may be accomplished by the natural passage; because, unless we adhered to this rule, there would, I fear, be no end to the cases in which the operation would be needlessly performed. By Dr. Davis it has been judiciously observed, that if the abdomen were laid open above the pubes, the tumour might, perhaps, be removed from the abdominal cavity, so as to make room for the passage of

the child through the pelvis, and to supersede the division of the uterus. For myself, I conceive, that in some cases, perhaps, the tumour might be advantageously dissected away, by laying open the back of the vagina. Two advantages would result from a measure of this kind — the clearance of the pelvic cavity, I mean, and the liberation of the body from a diseased mass, which, in the progress of its growth, might afterwards destroy the patient. These practices, however, require much previous meditation. The success of Drew's cases is encouraging. Do not lose sight of this hint, remember the dilatation of the urethra ; — in surgery we must never despair, yet beware of rashness.

In fine, then, the principal practices admissible in these cases of pelvic tumour, concurrent with parturition, are the following ; the urging of the tumour above the brim of the pelvis, if indeed this can be done with gentleness ; the giving a fair trial to the natural efforts, and the reduction of the bulk of the intumescence by puncture or incision. Other practices of more dubious utility, to be recollected, however, where the former fail us, are those of turning, applying the forceps, laying open the head, in conjunction with puncture of the tumour, and the performance of the Cæsarean operation. Extirpation of the tumour, by way of the vagina, may, perhaps, in an improved state of abdominal surgery, prove of valuable use ; but till facts have accumulated, it is better to refrain.

As the case under consideration is very dangerous, and of vast interest, and as it is not improbable that you may have to contend with it in practice, I have got together a table, in which the result of the different methods of treatment is concisely stated, and which table is the following. One case I know of, in which the tumour was pushed above the brim of the pelvis, both the mother and child recovered. Four cases I know of, in which the tumour was laid open by puncture or incision ; in the first of these, the mother recovered with difficulty ; in the second, imperfectly ; in the third and fourth cases, she died ; in one of the cases, about six months after the operation was performed, three of the four children were saved ; of eight lives, therefore, five were preserved, and three were lost. Eight cases are come to my knowledge, in which embryotomy was adopted, (this operation, unfortunately, being too easily accomplishable,) in these cases, two of the mothers recovered, one of them imperfectly, and five of them died ; of course all the children were lost ; of seventeen lives, therefore, three only were preserved, and fourteen were lost, for one was a case of twins. Of turning, I have five recorded cases ; in four of them the mothers died — in *all, the children ;* of ten lives, therefore, one only was preserved, and nine were lost. Of puncture and perforation combined, that is, puncture of the tumour, and perforation of the head, three cases are known to me ; in one of these, the mother recovered ; in the second, she died ; in the third, she sank eighteen months after the operation ; all the

children were lost ; of six lives, one only was preserved. In the second volume of the *Medico-Chirurgical Transactions,* there is an excellent paper on recto-vaginal tumour, by Parke, of Liverpool ; and, in the tenth volume of the same work, there is another still more excellent from the pen of Dr. Merriman ; and to these papers I am indebted for many of the preceding facts. On reviewing these cases, you draw your own inferences ; but we may, I think, safely conclude from them, that unless the tumour can be urged above the brim, to open it is the most desirable practice, unless, indeed, it can be extirpated.

LECTURE XXXIII.

INVERSION OF THE UTERUS.

We sometimes find in cases, especially which have been mismanaged, that, together with the vagina, the womb is turned inside out ; and, in consequence of this *inversion* of the uterus, as it is technically called, a large tumour is formed, which lies forth between the limbs. In other cases, where the inversion is less extensive, there is a change in the position of the uterus only, and the womb becoming inverted without the vagina, forms a tumour which lodges in the vaginal cavity, and which cannot be perceived without the introduction of the fingers. Nor must I omit to mention, that there is yet a third degree in which the inversion may occur, for it sometimes happens, that the fundus, or summit of the uterus, is drawn down alone, a little way only, so as to produce a sort of *depression* or *dimpling* of the upper part ; and where this partial inversion of the uterus occurs, the whole womb, under efforts like those of parturition, may be eventually pushed down, and this, independently of anything done by the accoucheur, so that what was originally a partial inversion may thus become complete.

In cases where the inversion is of recent occurrence, you may readily believe that there is no mutual cohesion of the sides of the uterus, and no difficulty, therefore, arising from this cause, prevents the reduction ; but it is to be remarked also, that where inversions of the uterus have been of very long standing, the woman living for months, or it may be for some years afterwards, still, as far as observations have been made, those mutual cohesions of the sides of the uterus have not taken place.

When an inversion of the uterus, or of the womb and vagina, occurs, it sometimes happens, that the patient scarcely sustains a single symptom of serious inconvenience, and this more especially if the accoucheur, discovering what has unfortunately happened, promptly, without a moment's delay, with gentleness and firmness, reduces the inversion. Where, however, uterine inversion does

take place, more generally very dangerous symptoms are manifested, those symptoms consisting of collapse of the strength, with large eruption of blood from the uterus, and now and then terminating in the death of the patient.

When the uterus is inverted, and remains in the inverted position, whether lying in the vagina merely, or whether lying forth between the limbs of the woman, it will sometimes happen that, for hours after the accident, not a single pressing symptom shall occur. In general, however, when a womb is left in this inverted position, the patient is still liable for hours, and days afterwards, to large and even fatal eruptions of blood, of which I have myself been a witness; add to which, that independently of the flooding, mere displacement of the parts may, perhaps, give rise to more or less collapse; obstruction of the bladder, too, is not unfrequent, and the introduction of the catheter may become necessary.

If the woman survive the more immediate danger, she may live for weeks, for months, nay, sometimes for years — five, ten, fifteen, or twenty — I believe, the womb remaining inverted; and this, perhaps, more especially where, happily for the patient, the inversion has taken place about the period of the cessation of the catamenia. But the womb remaining inverted, it more generally happens that, month after month, (sometimes every two or three,) when the patient ought to become the subject of the catamenia, instead of there being these natural discharges, eruptions of blood are observed, as if she had miscarried; and those eruptions of blood being monthly, or bimestral, the strength collapses, the exhalants begin to pour out their fluids; and the woman, weakened, wasted and bloated with water, at the end of twelve or fourteen months is brought into the most imminent danger, or, it may be, collapses and sinks.

There are few diseases more readily recognised by those who are possessed of obstetric touch, than these inversions of the uterus. If, together with the womb, the vagina is inverted, the whole mass forms a large tumour between the limbs, bigger than a child's head; and this tumour, on careful examination, is known to be the uterus, by various marks which it is unnecessary to recapitulate. Do not then lay hold of it, and try to force it away; do not take a pen-knife and amputate it with merciless ignorance, without being aware what it is you are removing. Obstetric ignorance is a tremendous weapon — beware.

Sometimes, again, I have said, you have an inversion of the womb only, without inversion of the vagina, and then there is a little more difficulty in discriminating the case, for the tumour does not lie out for inspection, but is contained in the vagina, forming a swelling large and soft like the fœtal head when intumescent, and which Burns has happily enough compared to a *printer's ball.* When, after the completion of the delivery, you make your examination with a view of finding the uterus in its ordinary situation above the symphysis pubis, an examination which, if you follow my rule of practice, you will always institute, you soon discover

that it cannot be detected there. Well, then, the womb being indistinguishable in the true pelvis above the brim, in the ordinary situation, behind the bladder, you proceed to institute an examination by the vagina, and discover there a swelling large as a child's head, round and soft, as before stated, when there can, I conceive, be little doubt respecting the real nature of the case. Even where there is merely a partial inversion of the uterus, one of those depressions at which I was before hinting, this may be ascertained with tolerable facility. Passing one or two fingers of the left hand into the vagina, and feeling the os uteri, you get a bearing on the womb, and then pushing forward the uterus, above the symphysis pubis, you lay the right hand on the fundus, above the symphysis, readily feeling the fundus through the abdominal coverings, always thin after delivery (unless the woman is unusually corpulent); and thus examining with nicety, you detect the depression.

To conclude, — by careful and nice examinations, inversion of the uterus, in all its different degrees, may be detected by a dexterous and deliberate investigator, well versed in inquiries of this kind. Should the womb be deposited between the limbs, under view of the examiner, the disease may then be readily enough distinguished at a glance, more especially if suspicions have been excited; a little more investigation is necessary when the womb is lodged in the vagina, and if depression only exists, this may require very accurate and delicate inquiry, though even in these cases, by competent persons, a diagnosis may be made.

TREATMENT OF INVERTED UTERUS.

It has, I believe, rarely, if ever happened, when a womb has been inverted for a day or two, that attempts at reduction have been attended with success. Denman, I think, says, that he has never, in one single instance, succeeded in reducing an inversion which was become chronic, nor, in the present state of my knowledge, under such circumstances, should I entertain such hopes of success as would lead me to make an active essay. Indeed, if two or three hours only elapse after this displacement of the uterus, the probabilities of reduction are small; and this being the case, therefore, if you should be called to an inversion two or three days after the accident, you ought either to make no attempts whatever at reduction, or, at all events, these attempts ought to be made with the greatest tenderness and caution; on the whole, I should incline not to attempt reduction at all, fearful, and not without reason, lest, by handling the uterus, I should tear the vagina, bruise the parts, or, which is still more to be apprehended, lest I should give rise to fatal hemorrhage in a woman probably already much reduced. But should it be your lot to be in the chamber at the very moment when the womb becomes inverted; in other words, should the accident occur to yourselves, which however it can scarcely ever do, provided you adhere rigidly to

that management of the placenta before prescribed, remember it is a rule of primary importance, scarcely admitting an exception, that, in all cases, without a moment's delay, you ought to replace the uterus, immediately on discovering that inversion has occurred. Nor can you readily overlook this inversion, provided, after all deliveries, you feel for the womb in the region of the bladder, in the way so often recommended. Proceeding then to reduce the womb immediately after its inversion, you will probably return the womb with as much facility as that with which it was originally drawn down; but if you were to procrastinate needlessly — if, in a perturbed state of mind, losing precious moments, you were to wait with a view of sending for further assistance, the womb contracting itself, its cavity would become small, its sides would become thickened, its consistency would become indurated, and the return of it would be thenceforward impossible. Remember, therefore, should inversion occur to you, (which I hope it will not, for its occurrence is not creditable,) remember, I say, that it is your office, as soon as you discover the accident, to replace the organ without the delay of a moment. Seize time by the forelock.

Under inversion of the uterus, the placenta is sometimes completely detached, and there is no question then as to how you are to dispose of it; but, in other cases, this viscus may still cohere to the surface of the uterus extensively, or by a single lobe only. Now when this is the case, a question may arise, and which you ought to be prepared to answer, before you reach the bed-side of the patient; and this question is, whether the placenta ought to be removed or not. Now the rule, in few words, is this; if the placenta be detached, in good measure, you had better remove it entirely; some hemorrhage will be produced, but this you must venture; the case is necessarily of more or less danger, nor can you therefore proceed, without some risk; but if, on the other hand, the placenta is diffusively adherent to the uterine surface, then perhaps they are right, who recommend us to reduce the inversion, with the placenta on the uterus, to be removed afterwards in the ordinary manner, when the reduction has been accomplished. Fatal hemorrhage might follow the removal of the placenta, while the womb remains inverted, and this is one reason of the rule. Contraction of the womb, while in the inverted position, might occur, if the placenta were abstracted at this time, and this is another reason of the rule. After all, however, I suspect it will sometimes be found difficult to return the womb, while the afterbirth adheres to it; but never having inverted the uterus in my own practice, I have had no experience here, and my opinion should have but little weight.

As all the cases of inverted uterus, which are fallen under my hands, have been of some hours, or rather, I may say, of one or two days' standing, I have never myself had an opportunity of trying to reduce the inversion; and from my own observations, therefore, I can say but little respecting the manual method of

managing this disease. I must remark, however, that there are two modes of treatment recommended in these cases, and with both which, I think, you ought to be acquainted. The womb hanging forth between the limbs, you may, if you please, lay hold of its substance and grasp it, and in this manner, reducing its bulk somewhat, you may press it back again into its natural situation. In this operation you may observe the reversion begins at the mouth, and then passes to the neck, body, and fundus, all these parts being turned back again in succession; so that at length the whole, both of the womb and vagina, becomes reduced. But there is yet another mode, in which the reduction of the uterus may be attempted; for the womb being pushed into the vagina, the accoucheur may get his bearing on the fundus, or most depending part; and beginning his reduction there, he may first push inward, and return the fundus — the body, neck, and mouth, afterwards following, and then the vagina. Of these two methods of reduction, the one or other may be desirable, according to circumstances, and therefore with both you ought to be acquainted.

In reducing the uterus, be careful not to urge it unawares against the point of the arch of the pubes. In entering the inferior half of the cavity of the pelvis, be careful, too, to carry the womb upwards towards the promontory of the sacrum — that is, in the axis of this part; and, in rising through the superior half, let the womb be advanced towards the navel, so as to follow the axis here also, for it will mount more easily. When reducing the uterus, be careful that the reduction is complete, do not content yourselves with merely pushing the womb into the vagina. Be careful, too, that you do not leave a depression of the fundus, for a depression left in the fundus may give rise to violent forcing efforts, and under these the womb may be again pushed down, and become irreducible.

With respect to the *force* you may employ, remember, that the smallest force which will accomplish your object is the best, and that you never can use the higher degrees of force without a most formidable risk of tearing the vagina, and perhaps the uterus. The higher degrees of force have been recommended; and I think I have heard Dr. Hamilton of Edinburgh say, that he has sometimes operated with a good deal of resolution. It is to be recollected, however, that some ten or twelve years ago we were not in possession of any operation which enabled us to save our patient, provided the inversion of the uterus became chronic. In this condition of the disease, not unfrequently periodical flooding occurred, the woman ultimately perishing cachectic; as therefore there was little hope of recovery, unless the womb were reduced, force, in our operations, might appear the less unjustifiable. Since, however, it has been proved by Mr. Newnham, of Farnham, that the inverted uterus, when chronic, may be removed by ligature; since further, in three or four different instances, the operation has,

to my knowledge, been successfully performed by others; for the employment of force in our attempts at reduction, there seems now to be no pretence. Vis expers consilî, ruit mole suâ. In a scientific midwifery, violence has no place; and even the vis temperata, force, under the rule of reason, is a dangerous auxiliary.

Here you may ask me, if foiled in our attempts to replace, is there nothing that may be done, in order to render the parts more relaxed and obsequious? Why, for this purpose, we are advised by some practitioners to bleed to deliquium, but this recommendation must not be too rashly adopted. Indeed, large bleeding occasionally, nay, perhaps frequently of itself accompanies these inversions, so that all the advantages derivable from depletion are, in this manner, spontaneously secured. Tobacco injections too, might, perhaps, be of great service. We all know that tobacco injections have great power in producing relaxation of the muscular system; and, in a formidable disease like inversion of the uterus, it might be worth considering whether the injection for hernia should be tried. The warm bath, too, might be thought of, but the risk of asphyxia, and of bleedings from the uterus, must render the warm bath very uncertain and unsafe.

If by prudent efforts, and such force as we may use, we cannot gently reduce the uterus in any way, we must then have recourse to palliative remedies. *Flooding* is the principal danger to be apprehended, and this appearing, you may treat it according to the principles already prescribed. If the urine is retained, the catheter may be introduced. If you find that the woman is wearing away under sanguineous oozings, the uterus lying within reach, you may then try the effect of astringent remedies. Webber successfully extirpated the inverted uterus on the fourteenth or fifteenth day after delivery. If the woman were evidently in danger of sinking from the oozings, extirpation, with proper caution, and by competent hands, might be thought of. A ligature would probably be necessary. I have seen one woman perish, who might perhaps have been saved in this manner. Observe, however, that, in the present state of knowledge, I dare not recommend this operation to you. Beware, I entreat you, beware of juvenile temerity.

It is not always that inversion of the uterus is produced by the mismanagement of the accoucheur, and yet in the majority of cases, I am afraid that his practice is to blame. In the general, I believe, inversions of the uterus are produced by the practitioner, unacquainted, perhaps, with the principles of his art, who draws down the placenta, without previously securing the contraction of the womb — a gross error, against which you have been repeatedly cautioned. Now, when the womb is in this way uncontracted, its cavity open, its fibres relaxed, its substance soft, its placenta cohering; if you at this time lay hold of the umbilical cord, and draw down, you will easily, very easily, accomplish an inversion, for what is there to resist it? But if, as you always

ought to do, you secure the contraction of the uterus, before you bring the placenta away, the sides thickening, the cavity contracting, the fibres hardening, you cannot invert the uterus if you would: first, because it will not double on itself, and then too, because in consequence of this thorough contraction of its surface, the placenta becomes detached, so that when you pull, you pull the placenta only, and not the uterus; and therefore it is, that when you are withdrawing the placenta, you ought, in the general, first to secure a thorough contraction of the womb; therefore, again it is, that where inversion of the uterus occurs, these inversions are ordinarily occasioned by the neglect of the accoucheur, who draws forth the placenta without previously securing the contraction of the uterus. But independently of the inversion of the womb in this manner, the displacement in some cases appears to be produced by the shortness of the umbilical cord. The child is laid hold of as soon as it comes into the world, the length of its cord, perhaps, not exceeding seven or eight inches, (Dr. Haighton met with a case in which the cord was shorter,) and the accoucheur hastily drawing the cord from the maternal genitals, and this without respect to the brevity of the funis, a pluck at the placenta, and an inversion of the womb is the result. Sometimes, perhaps, the womb is inverted by the falling of the fœtus from the uterus in cases when the pelvis is large, and the parts are lax; and sometimes, as I suspect, from pressure of the intestines, or some other cause, a depression of the fundus uteri is spontaneously produced, without blame to the accoucheur, this depression, with or without vehement efforts, like the parturient, proceeding afterwards, till the inversion becomes complete. Moreover, in spontaneous depression of the fundus, the abstraction of the placenta may complete the inversion, and, perhaps, when the placenta is drawn down with great gentleness, the accoucheur is surprised to find, that with it the fundus of the uterus descends. And thus, then, it is in these cases that inversions of the uterus are produced, more generally by the neglect of the accoucheur, who forgets to secure the contraction of the womb before he brings away the placenta. Occasionally, however, by the sudden fall of the fœtus from the mother, and occasionally by the descent of the intestines precipitated upon the fundus of the uterus, and giving rise to the commencement of an inversion, which is afterwards completed by efforts of the abdominal and other muscles — like the efforts of parturition.

The grand *errors* which you are apt to commit in the management of these cases of inversion of the uterus are the following: — In the first place, you may produce the disease in the way I have explained, by neglecting to secure the contraction of the womb before the delivery of the placenta. In the second place, neglecting to examine the uterus properly after delivery, you may not discover the accident till a day or two afterwards, when it is too late to reduce it; and, thirdly, where the womb is drawn beyond

the external parts, not recognising what you have done, you may make violent efforts to pull it away, as if it were some tumour that ought to be removed; or you may rashly have recourse to some amputating instrument, the patient dying in consequence. Violence in your attempted reduction is another error which you may commit. I can never too often caution you against violence.

RUPTURE OF THE UTERUS.

Do not flatter yourselves with the idea, that disruptions of the uterus or vagina are of very uncommon occurrence; it is true, indeed, that they were not commonly made the subject of conversation, because those who have the misfortune to occasion death in this manner, are naturally desirous of concealing the fact; but from what I have seen myself, and from what I have learned in conversing with my obstetric friends, I am persuaded that lacerations of the womb are by no means unfrequent, and they require, therefore, our diligent study, both in regard to their prevention and their cure.

When a laceration occurs, any part of the genitals may yield from the perineum upwards to the fundus, but more generally it is the neck of the womb, or the contiguous portion of the vagina opposite the symphysis pubis, or the promontory of the sacrum. Most of these lacerations are transverse; longitudinal rents are rare. One case I have myself seen, in which the womb was torn longitudinally, where it unites with the broad ligament in such a manner, that when passed through the rent the fingers lay interposed between the folds of the peritoneum. Examining the parts after death, when lacerations have been effected, you will sometimes find the child lying among the viscera in the abdominal cavity, and generally a quantity of blood, from a few ounces to a pint or more, is lodging in the lower part of the abdominal cavity and the pelvis; appearances of inflammation about the intestines sometimes manifesting themselves, if the woman have lived long under the disease. Burns says, that in all cases which he has examined, he has noted more or less the inflammatory characteristics.

CHARACTERISTICS OF RUPTURE OF THE UTERUS.

Where laceration of the genitals is about to occur, premonitory symptoms are not always observed, and yet sometimes a woman screams out she has the cramp, the womb giving way at that moment. Sometimes she complains of a pain very different from the parturient pains, and this pain may be felt for a quarter or half an hour before the laceration takes place. If the skin were laid hold of, say on the back of your hand, and then distended till it was on the point of disruption, great pain would be experienced; so it

may be where the uterus is on the eve of giving way; a great pain, premonitory of the rent, may be produced. From what I have seen of these cases, however, I deem it right to remark, that the precursory symptoms are not sufficiently characteristic; and this renders it very difficult to have recourse to any effectual measures, of the preventive kind especially, when the laceration is produced, not by the hand, but spontaneously. When laceration of the womb takes place, I have been told that a rending noise has been heard, and perhaps the patient exclaims that something has yielded, and then the countenance falls, the stomach vomits, the extremities become cold, the pulse rises to 130 or 140 in a minute; the pains, perhaps, become small, weak, and irregular; in a word, death seems to have already seized upon its victim. Alarmed by these unexpected symptoms, where the woman seemed to be doing very well previously, you lay your hand upon the abdomen, and, through the abdominal coverings, you distinctly feel the child, and its different members, lying out of the womb among the viscera. In these cases, the effect on the head varies. More generally this part recedes, sometimes, perhaps, lying beyond the reach of the examiner, if dexterity be wanting; sometimes, and more frequently, lodging above the brim, where it may be distinctly felt by the finger, like a float in water, very movable under the touch; and sometimes, lastly, being impacted in the pelvic cavity, so that it neither recedes nor advances, but remains immovable, as in cases of incarceration, much in the same manner as if no rupture had occurred. In rare cases, the child is expelled, notwithstanding the rupture; the laceration probably resulting from the very pain by which the birth is completed.

When lacerations are seated in the sides of the uterus, the bleeding is more copious, because the large vessels are there; but if, as more frequently happens, the laceration is of the front or back of the uterus, the bleeding is more sparing, of a few ounces only: indeed, the extent of the wound considered, it is really surprising that more bleeding is not experienced. It must be recollected, however, that it is not by incision, but by laceration, that the parts are laid open, and the same in principle holds of other parts of the body, for when the arm is torn from the shoulder, but little hemorrhage occurs. The termination of these cases of laceration is various. The patient may sink in the course of a few hours, five or ten, for example; or she may survive for one or two, gradually and ultimately sinking, or rallying beyond expectation; or, lastly, she may become the subject of various cachectic symptoms, and recover at the end of a few weeks. All this I have myself seen. Remember, death is not the necessary consequence of these dreadful injuries. In repeated instances the woman has recovered, and a well-marked case of this kind was once under my own care.

There are two grand *causes* to which lacerations of the uterus may be ascribed, and let these be remembered; the one is con-

tinued resistance to the passing of the fœtus, the other is obstetric violence, whether of instruments or the hand. That spontaneous lacerations of the uterus may occur when the fœtus lies unfavourably, or the pelvis is contracted, or when, from other causes, the birth is powerfully obstructed, is a point now established beyond all controversy.

Subordinate causes of laceration there are, also, nor should these be forgotten. The *linea ileo-pectinea* of the pelvis is sometimes so sharp, that the finger may almost receive a wound from it, and a bearing on this may, *perhaps*, dispose to rupture of the uterus. Attenuation of the substance of the uterus may also occasion laceration, some parts of the womb not being thicker than brown paper, while others are of the ordinary thickness. *Irregular contractions* of the fibres of the womb are said to occasion rupture; but I incline to suspend my opinion on this point. *Falls* also, and other violences, may be productive of this injury; thus the passage of a carriage-wheel over the abdomen of a pregnant woman is very likely to occasion it. The hand of the accoucheur may sometimes tear the genitals, although no extraordinary force have been employed. While, however, you bear in mind these less frequent agents, remember that the two most frequent causes to which these accidents are to be ascribed, are the culpable violence of the accoucheur, or the continual resistance to the passage of the child, and to these, therefore, the mind ought to be steadily directed, whether in the preternatural labours, or the laborious.

TREATMENT OF RUPTURED UTERUS.

The management of these cases, so far as they admit of management, may be given in few words: if the child have been thrown into the world, the accoucheur has nothing to do but to treat the patient on the ordinary principles of medicine and surgery; I will not venture to assert, that it may not hereafter be found, that *extirpation* of the uterus, in some cases, is advisable, but at present the operation is, I conceive, unjustifiable. If, again, disruption occurring, the head of the child is *incarcerated* among the bones, so as to remain fixed in the pelvis, though the body lies forth through the rupture, you may then, properly enough, apply a pair of forceps; in this way superseding the necessity of the operation of turning. When lacerations of the womb occur, however, it will generally be found that the child enters the peritoneal sac, the placenta immediately following it, the womb emptying itself as effectually as when it expels the ovum through the pelvis. By examination, this ventral lodgment of the fœtus is easily made out, and when ascertained, it then becomes your office to remove the coat, to raise the sleeve of your shirt, to lubricate the hand, and to carry it resolutely, but gently and steadily, along the vagina, and through the ruptured opening, so as to enter the cavity of the peritoneum, lay hold of the feet and bring away the child by the opera-

tion of turning. Beware of grasping the intestines and pulling them down along with the feet. Provided no injury be inflicted on the mother, the sooner the operation of turning is commenced and completed the better, because if the child be left long in the peritoneal sac, it perishes there, in consequence of a suspension of the function of the placenta, which lies detached among the intestines; but if the fœtus be removed promptly, there is a reasonable hope that it may be abstracted alive; and, if no violence be employed, promptitude of delivery may also facilitate the recovery of the mother. The child taken away, the placenta is to be abstracted also, the operator being very careful not to leave any part of it behind: and in this abstraction great care must be taken that you do not draw down any other parts together with the after-birth, and more especially the intestines. Let the mind in these dreadful emergencies be kept tranquil and unshaken; unless you are undisturbed and settled steadily upon obstetric principles you are unfit to act. What must we say of an operator who could take a pair of scissors and cut off a fold of the intestines of a living woman, merely because it protruded! What of an operator who could afterwards throw this into a vessel to be seen by the nurse and other attendants! This supposition is no rhetorical ornament; I have good reason to believe that it has happened more than once. Mental agitation may alone account for such wild conduct. Be calm, then — beware; or if this be impossible, then throw up the management of the case altogether, and send for further assistance. Do not mislead yourselves with a notion, that these cases are desperate, and, therefore, that it matters little what is done for the patient. One recovery I have myself witnessed, and there are others on record.

A woman in this neighbourhood had a contraction of the pelvis; it was a case that occurred to one of yourselves, but no blame attached to its management. I was called in, in consequence of collapse of the strength, and when I examined, I found the child lying in the peritoneal sac, distinct from the uterus, the aperture of which was contracted, and I found further a large transverse rent opposite to the bladder. In this case, agreeably to the rule, I determined to turn, and for this purpose, introducing my hand into the peritoneal sac, I perceived the intestines, felt the beat of the large abdominal arteries, touched the edge of the liver, and, ultimately reaching the feet of the child, I withdrew it by the operation of turning, subsequently abstracting the placenta and membranes, the woman recovering in a few weeks afterwards. About five years after the recovery I saw her, not so vigorous as before the accident, but nevertheless tolerably well. On very careful examination at this time, the os uteri was found to present the natural characters, and not a vestige of a cicatrix was discoverable in the vagina anywhere, above or below; the rupture, therefore, had been above, in the uterus itself. When, in this case, my hand was introduced to turn the fœtus, the womb, large as a child's

head, was felt lying upon the promontory of the sacrum, above and behind the rent.

But what is to be done were the fœtus in the abdominal cavity, and cannot be reached, the child being inaccessible in consequence of contraction of the aperture? If there seemed to be a disposition to rally a little, I should feel inclined to try palliatives, if these were indicated, and I should leave the patient mainly to her natural resources. When the fœtus remains among the viscera, recovery is not impossible; becoming converted into bone, it may lie inert in the peritoneal sac for twenty, thirty, or forty years afterwards. In the Museum of the London College of Surgeons is an ossification of this kind, presented by Dr. Cheston; and from the history of it which he gave to Dr. Haighton, I am persuaded it was produced in this manner. After smart labour in this case the presentation receded; the child left the womb by rupture, lodging either among the intestines or between the peritoneal covering and the muscular substance of the uterus, and the woman lived for forty or fifty years afterwards, this fœtus, as shown by dissection, becoming converted into bone. But what if the child should escape into the peritoneal sac? and if, further, the symptoms being most alarming, there should appear to be no hope for the woman in her natural resources? In such cases, it would be for sober consideration, whether it might not be advisable to have recourse to abdominal incision, provided the patient would heartily assent. That such mode of proceeding is not altogether without hope, is proved by the following case:—A robust country-woman, becoming with child after fracture of the pelvis, was found to be so contracted and distorted at the time of delivery, that the abstraction of the fœtus by the natural passages was impossible. Parturition coming on, a dexterous and intrepid surgeon, Mr. Barlow, of Blackburn, determined, after due preliminaries, to deliver by abdominal incision. For this purpose she was placed on a table, and when the abdomen was laid open, the fœtus appeared to lie behind a thin membrane, probably the peritoneal covering of the uterus, the muscular substance alone having given way. Mr. Barlow divided the membrane and removed the fœtus, which was dead; and a fortnight or three weeks after the woman was well enough to engage in her domestic concerns. I give you the case as it used to be narrated by Haighton, and to me it appears to have been a case of rupture of the muscular substance of the uterus without rupture of the uterine peritoneum, the patient recovering, after delivery by abdominal incision. Does success, in this case, belong to an anomaly or a general principle?

Would extirpation of the uterus, with or without inversion, be of service in these cases? This question may be answered better next century. There is a great deal to be done in abdominal surgery, but neither by dogmatists nor empirics; a well-balanced spirit of caution and enterprise—this is what is wanted to improve it.

LECTURE XXXIV.

LINGERING PARTURITION.

Delivery commencing, where women have had a large family, it not unfrequently happens that the child is expelled in the course of one or two hours, or a shorter period; yet now and then, even where the pelvis is capacious, and the softer parts fully relaxed, parturition may be prolonged for many hours or days, in consequence of a deficiency of pains; and it is this prolonged labour, arising, you will observe, not from a resistance of the softer parts, not from a deficiency of room in the pelvis, but from a want of uterine effort, that constitutes what is denominated lingering labour, and to the consideration of this I next proceed.

In lingering labour, — that parturition is begun, we know by the usual indications. For days perhaps, previously, the abdomen has been shrinking in its bulk; for hours before, there has been a discharge of mucus, tinged with blood, forming what is called the *show;* the ordinary pains are felt too, though unfrequently and feebly, and, when we make an examination, we observe that the os uteri is gradually dilating; that during the pains the membranes are becoming tense under the touch, relaxing when the pain ceases; and further, if the liquor amnii have been discharged, we find, during pain, that the head bears upon the finger, receding when the pains cease; so that, by considering these circumstances in combination, although the labour be advancing very languidly, still we may obtain a clear proof that the process is begun. In lingering labours, generally, unless there are symptoms of danger, the less you interfere the better, for a meddlesome midwifery is bad; and if the protraction of the delivery be the only inconvenience which the patient suffers, and if there are no convulsions, no floodings, nor well-marked signs of collapse to excite alarm, it is scarcely necessary the accoucheur should interfere at all; nor need the patient herself be exposed to much inconvenience, as she may remain in her chamber, or come down to a well-aired drawing-room; sitting, standing, walking, or lying in bed, according as her inclination leads; food she may take regularly; and if under these lingering pains she gets but little rest, you may give her an opiate, so that once, at least, in the four-and-twenty or eight-and-forty hours, she may have an undisturbed sleep. Although, however, in lingering labour much help is not really required, it does sometimes happen that the anxiety of the patient, and the solicitude of her friends, or, perhaps, the convenience of the accoucheur himself, not to be altogether neglected, render it desirable that the labour should be accelerated somewhat; and it may, therefore, be worth our while to consider what milder means may be employed with a view of augmenting, as far as may be, actions of the uterus. I say, *as far as may be,* for the action of the uterus, happily, is

not much under our control, nor can it always be stimulated by artificial means.

Denman somewhere remarks, that he reflects, with infinite satisfaction, on various cases in which the *sedentary posture* alone has had the effect of exciting the uterus and superseding the need of obstetric instruments; and certain it is, that the mere erection of the body, whether in sitting or walking, will sometimes have the effect of powerfully exciting the pains. In a practical view, it is sufficient to know that such is the effect of the erect posture, although we may not be able to explain how it is that this effect is produced; were I asked, however, to venture an opinion here, I should reply, that the excitement may be ascribed, in part, to the bearing of the fœtal head upon the neck of the uterus, and in part to the movement of the muscles within the pelvis. When, therefore, the pains are feeble, it is not unusual to direct the patient to rise and walk about. Care, however, must be taken that the woman be not fatigued by walking too much, for if she have been pacing the chamber for some hours together, you will find, by a little calculation, she has walked several miles, and it is scarcely necessary to admonish you, that a walk of several miles is very unfit for a patient during parturition. I have seen patients moaning in their pains, weary with excessive exertion of this kind.

By saline, or other stimulant injections into the rectum, the uterine efforts may sometimes be excited, and by some practitioners they are strongly recommended. To women this is not very agreeable, and especially to our countrywomen who are not so much in the habit of using purifying injections as the ladies of the continent; nevertheless, it is a very simple mode of treatment, and may well deserve a trial. An ounce of salts may be dissolved in five or six ounces of senna tea, to be thrown into the rectum by means of a syringe, which is best for the purpose, or else by means of the ordinary bag and pipe. The cases which are the best adapted for the use of the saline clysters are those in which the head is fairly down among the bones of the pelvis, and lying in the vagina between the outlet and the brim, and where there is merely want of a few forcing pains in order that it may be expelled. By means of cordials, and other stimulants, taken into the stomach, the uterine efforts may be excited; and, on this principle, ale, wine, or spirit and opium, in its smaller doses; six or eight drops of the tincture, for example, may be given with advantage. In administering these to the lower class, (fond of the alcoholic stimulus, in one form or other used in all countries,) you must be very careful that you do not suffer them to become inebriated. Those cases are best adapted for cordials in which there are coldness of the extremities, a weakness of the pulse, and a certain degree of nervous languor, sometimes accompanied with a considerable hysteric and mental depression, and a true nervous apprehension respecting the result of the labour. Women,

very accessible to feeling, are not equally open to reason, and you may, therefore, find it of little avail to descant on the groundless nature of their fears. A glass of wine has its ethical excellences, and it may sometimes dissipate these terrors more effectually than an edifying discourse of the usual length of an hour; for it is mortifying to find, after all our exalted speculations in morals and psychology, that happiness and misery are so closely connected with the state of the stomach, that some observers might reasonably refer to the nerves or the gastric cavity for the seat of that *summum bonum*, which philosophy has been seeking for the last two or three thousand years.

It is a well-known fact, that the discharge of the liquor amnii has a great effect in bringing on the pains, and I formerly stated to you the mode in which this may be accomplished. In different cases there is a variety in the time which elapses between this operation and the commencement of delivery, eight-and-forty hours being, I think, a sort of average; and thus, in a lingering labour, and more especially in the first stage, by rupturing the membrane, you may sometimes accelerate the birth. There are two kinds of cases in which this discharge of the liquor amnii seems to be more especially desirable; first, those in which there is a great quantity of water in the uterus, and where, from the first, the pains are very inefficient, I mean before the os uteri is open; and, secondly, those cases of rarer occurrence, in which the head of the child is come down among the bones of the pelvis, so as to close the vagina, and thus, perhaps, prevent the full discharge of the waters, these waters escaping, in small quantity, every two or three hours, with return of the pains. Of the management of the latter cases, I have little to state from my own personal experience. By Burns, and others, we are advised to facilitate the escape of the waters by gently raising the head, in such a manner as to lay open the passage through the vagina, the most favourable moment for the operation being when there is a little, and but very little pain, the waters escaping in part by their own gravity, if the position of the patient be semi-recumbent, and in part from the expulsory action of the womb. If, again, the labour is in the *first* stage, and there is much water in the ovum, by rupturing the membranes this water may be very easily discharged. In the absence of pain this little operation may be performed, but the most convenient occasion is when there is but little action of the uterus.

Every man who has had occasion to use the lever, or other obstetric instruments, the lever especially, must be aware, that when he gets a bearing on the head, and begins to draw down upon the outlet, not unfrequently pains are excited. Previously perhaps, the pains have been few and rare; but when the head is drawn down, the irritation gives rise to a powerful action of the uterus; and hence we may enumerate, among the causes well fitted to excite the uterine movements, that compression and irritation of the mouth

and neck of the uterus which may be produced by the action of the lever, or by means that are analogous. On this principle it is, that some practitioners have advised us to press with the fingers on the mouth and neck of the womb, and others have recommended, that the fingers of the right hand, being deposited on the back of the vagina above, these fingers should be repeatedly drawn down over the front of the rectum, with pressure of the parts so as to stimulate and excite the pains. Both these practices, however, I mention with a view to give a caution against them, I am not prepared to say that, under prudent management, they may never be safe and serviceable; but I regard them with fear, and think it better to refrain. If the womb is to be stimulated at all on these principles, the vectis is, perhaps, the best instrument for the purpose.

Of invaluable use we sometimes find the *secale cornutum* in lingering labours. The secale cornutum is nothing more than the rye-grain altered by disease — elongated, thickened, changed a little in its sensible properties, and acquiring, apparently, in a high degree, the power of exciting the muscular efforts of the uterus. On some parts of the continent there has, I believe, long been an opinion that rye bread is of abortive nature, and after all that I have seen and heard respecting the action of the secale cornutum, I think there is no doubt that it enjoys a specific power of stimulating the uterus, provided its muscular irritability be in a state well fitted to receive the impression. The secale cornutum, it is asserted, may kill the child in some cases; and if this were really the fact, it would be quite sufficient, in most instances, to set the remedy aside altogether, in cases of lingering parturition, for as, in general, there is no danger in delivery of this kind, if committed to itself, of course the life of the fœtus must not be put to risk. I ought, however, to state here, that I am by no means satisfied that the secale really does exert a poisonous influence on the child, though I am by no means prepared to deny it. The secale cornutum is likely enough to destroy the fœtus, if you use it not in the lingering cases which we are now considering; but where the birth is delayed, in consequence of increased resistance — rigidity, narrowings, or the unfavourable position of the head. In cases like these, if the secale cornutum be exhibited, and have a very lively effect, it may force the child down among the bones of the pelvis, where it may die by compression, not to mention, that under the circumstances stated, there must be no small risk of rupturing the uterus. In these cases, then, in which the resistance to the uterine efforts is great or insuperable, the secale cornutum may endanger both the mother and her offspring; but in lingering labours, assuming that the rye exerts no direct and poisonous effect on the fœtus, I look upon it as a very valuable and efficient remedy, at least in some instances. It should be observed, however, that the ergot of rye is of very uncertain operation, sometimes to appearance exciting the uterus most vehemently, while at other times it scarcely acts at all; nor is the cause of this difference altogether intelligible. There are different

forms under which the secale cornutum may be administered — of powder, for example, or of infusion or decoction. For myself, I generally add a drachm of the secale in powder, to three ounces of boiling water, decocting the whole briskly, with continual agitation, till it is reduced to about an ounce and a half, and then pouring off the decoction, I administer to the patient one of the three table-spoonfuls every twenty minutes, till the effect is produced. Sometimes the whole quantity is necessary to excite the action of the uterus; more generally, however, after the first dose has been exhibited, the pains become more frequent and more forcing, and the child may be expelled.

A meddlesome midwifery is bad; and lingering labours are not usually dangerous, so as to require peremptorily the assistance of art, and hence it follows, as a matter of course, (an inference which I hope you will all have the good sense to remember,) that in these labours generally, manual interference is scarcely required. To turn the child, merely because a labour lingers, is an abominable abuse; I think myself justified in using those two words, and I considerately repeat them — *abominable abuse*. In carrying the hand to the feet of the child, you may rupture the uterus, and in abstracting the head and shoulders of the fœtus, you may destroy it. To perforate the head, merely because the labour lingers, is a sort of murder, and if you do this, not from ignorance, but for the sake of saving time only, you are, I conceive, *in foro conscientiæ*, as criminal as the felon who dies on the gallows; but I hope none of you can be guilty of so enormous a crime, no, not even in thought. The lever and forceps may, perhaps, be now and then employed in lingering labours; but the judicious use of them must be rare. I have the satisfaction of knowing that I can employ those instruments with some dexterity, but I never employed them in a lingering labour. Instruments in the best hands are evils, and great ones, and you ought never to have resort to those obstetric evils, until there is an absolute necessity for them. I repeat it, therefore, when the labour is prolonged, without dangerous symptoms, without deficiency of room among the bones, without rigidity of the softer parts, the delay arising solely from the inertness of the uterus, it can be but rarely that manual operations will be adopted by the skilful accoucheur.

After the child comes into the world, in labours of this kind, you may expect an inertness of the uterus during the birth of the placenta; be prepared, therefore, for floodings, and be on your guard against inversions of the womb. If you lay hold of the placenta, and abstract it without reflection, acting first and thinking afterwards, you are all, I trust, aware, from what has been said already, that you run no small risk of inverting the uterus. After the child is born, unless there be flooding, it becomes you to wait for an hour, to allow the womb to repose; your second duty consists in feeling for the uterus, and grasping and compressing it gently, so as to urge it to contract, while, at the same time,

in feeling the uterus, you are enabled to ascertain whether it exhibit those characters of roundness, firmness, and hardness, which indicate that the contraction is complete; the womb contracting, your third duty consists in removing the placenta according to the rules already prescribed. The placenta removed, you ought then to ascertain whether there is inversion, flooding, or retention of any portion of the placentar mass. By examining the placenta, when spread out upon a cloth, you are enabled to decide whether the whole has, or not, been abstracted. An internal flooding is known, by compressing the uterus above the symphysis pubis in the region of the bladder, and external bleeding is so obvious, that it cannot be overlooked. Should inversion have occurred, you will find the womb lying like a child's head in the vagina, and should it not have occurred, you will find this viscus in its ordinary situation, between the umbilicus and the symphysis pubis. Beware, too, in these cases, of abstracting the placenta, without previously insuring the contraction of the uterus; this is a principal error. Beware, too, in these cases, of taking a needless alarm; remember that, in lingering labours, women generally do well. Beware, lastly, of needless interference in these labours; the hope of terminating a state of undesirable suspense, is the seducing siren by whom you are liable to be misled. Remember, then, that a meddlesome midwifery is bad, and that you are never to interfere with the operations of nature, unless compelled by necessity. In midwifery, you are sometimes forced to act, and with vigour too; but, in general, the less you interfere, the better. He is often the best accoucheur, who keeps his hands in his pockets.

PLURALITY OF CHILDREN.

In general, as we all know, women present us with a single child only; sometimes, however, they favour us with two, three, four, or five at a birth, and their generous fecundity may even exceed this number. Sennert relates the case of a lady, who produced at once as many as nine children, nor does this appear to me to be wholly incredible; and Ambrose Paré tells us of another lady, a co-rival of the former, I presume, who gave to our species no fewer than twenty children, I do not say at a single birth, but in two confinements.

It appears from statistical accounts, transmitted to government about the year 1801, that, in these islands, on an average of sixty-five cases of parturition, one is a birth of twins; from registers of the Middlesex Hospital, as cited by Burns, it seems that, in that establishment, the twin-births are, on an average, one in ninety-three. Not having given much attention to inquiries of this kind, I am not prepared to give an opinion, whether they are, or not, correct; certain however it is, that whether more frequent or rarer, twin-cases on the whole are by no means uncommon, and it is desirable, therefore, that you should not be unprepared for them.

To determine whether or not there is a plurality of children, practitioners have got together a variety of indications, and these, according to custom, I shall divide into three classes, according as they occur after, during, or before, the birth of the first child, treating first of those indications which are observed during gestation, before the labour begins. If a woman, throughout gestation, have an abdomen unusually small, you may generally be assured that there is not a plurality of children; and, in such cases, commonly, the question will not be asked; on the other hand, however, if you find that the abdomen is very bulky, and particularly the uterus, of which, perhaps, the outline may be easily distinguished, a plurality of children is by no means improbable. It is clear, however, that the large bulk of the abdomen, if it stand alone, is a very uncertain proof of twins; for the bulk of the abdomen may be occasioned by dropsy of the peritoneum, by enlargement of the ovaria, or a redundancy of the liquor amnii, not to mention gas, adeps, and other causes. In some women, too, we have much convexity of the lumbar curve, with a corresponding hollowing of the lumbar region behind, peculiarities which may give, perhaps, an additional grace to the figure, but certainly do not facilitate our obstetric diagnosis. This, which has the effect of advancing the abdomen, has also the effect of carrying forward the uterus, so that, where there is a single child, the lumbar vertebræ being pushed forward, together with the uterus, the abdomen, when viewed in profile, may appear as large as from twins. Now, I the rather mention this, as the sex are often deceived by it; the sex, and even the accoucheur himself, in his forgetful moments, might be misled by first appearances; but on laying the hand upon the loins of the woman, particularly if the dress be loose, the case becomes evident enough — it is an abdominal enlargement, arising merely from the advancement of the uterus.

When there is a plurality of children, the fœtuses may be deposited in the sides of the uterus; and hence, when the patient is taking the recumbent posture, if the hand be laid on the abdomen, the womb may sometimes be felt separating, as it were, into two lateral tumours, one on either side the spine, a sort of groove being traceable between them. If this observation be obscurely made, no certain inference may be drawn from it; but where it is repeatedly and clearly ascertained, I think it constitutes one of the most valuable signs indicative of a plurality of which our art is possessed.

If, too, there be plurality, the womb may be expected to enlarge the faster in consequence; and it is asserted, accordingly, that the fundus uteri ascends in the abdomen more rapidly, where these pluralities exist. Again: the movements of the fœtus, we are told, may be felt more extensively, where there is a plurality of children, than where there is a single fœtus only, and of course the abdomen is likely to feel heavier, when the ovum is not single. On these signs, however, after all, but little reliance can be placed; the

cumbersome weight of the uterus, the rapid ascent of the fundus, and the large bulk of the abdomen, prove but little; and of the diagnostics enumerated, the only one on which I should myself venture to lay stress is, the separation of the uterus into the two lateral tumours, in the manner before stated.

We are sometimes able to ascertain that there are twins in the uterus during the birth of the first child, and this class of indications may next deserve a little attention from us, though it is unnecessary to dwell much on diagnostics of the kind, because they lead to little practical advantage. If there be a plurality of children, you may find, after the discharge of the liquor amnii, that the uterus is still very bulky, and some might venture to infer that this large bulk of the uterus could not exist after the discharge of the water, except there was a second child in it. By a second in the uterus, sometimes the full action of the womb is prevented, whence skilful accoucheurs sometimes take a hint from the inertness of the uterus; and when there is a second fœtus in the uterus, that which is passing may be prevented from feeling the full effect of the pains, because a second child is interposed, so that the slow advance of the fœtus, without other cause to which it may referred, may be suspected to arise from plurality of children. When there is more than one fœtus, you may have, though rarely, a presentation of two right arms or legs, or three arms or legs, this being a clear proof of plurality, unless the child be monstrous.

It sometimes happens, where there are two children, that there is but one membranous receptacle, and of consequence, but one gush of water. More frequently, where there is a plurality of children, each is contained in a separate cyst, and each has its own liquor amnii. Now, two or three gushes of water are certainly no decisive proofs of twins; for these sometimes happen, indeed, not uncommonly, where there is but a single fœtus; nevertheless, if you do observe two very large and distinct gushes of water taking place, more especially where the bag from which the first gush issued, has been thoroughly lacerated, there can be little doubt. Dr. Hull, of Manchester, has, I think, met with a case, where there were as many as five gushes, the woman producing five children at a birth; so that sometimes during the birth of the first child, by repeated gushings of the water, by the protrusion of supernumerary members, by the inefficiency of the uterine action, by the inertness of the parturient effort, and by the large bulk of the uterus, after the liquor amnii has been thoroughly discharged, you may be lead to suspect there is a plurality of fœtuses.

It is, however, after the first child is come into the world, that the question of plurality becomes of the greatest practical importance to us, and to this part of the subject I request your particular attention. To know that there is a second fœtus before the birth of the first, is seldom needful; but it is highly desirable that every good practical accoucheur should be able to say whether

another child remain in the uterus after the first is away. If another child remain in the uterus, you may in general know it the very first moment by laying the hand on the abdomen, for instead of finding this part collapsed and flaccid, so that the coverings may be grasped in folds, and with a uterus contracted, round, and hard, easily to be distinguished when you have acquired a little manual experience, you observe the abdomen is nearly as large as at the end of nine months' pregnancy; and, therefore, when the reduction of the abdomen is by no means considerable after the birth of the first fœtus, you may be pretty well satisfied that there is another in the uterus. Should doubts, however, arise, the point may be further investigated by internal examination, when, if there is another fœtus in the uterus, you feel the bearing of a bag of water, as at the commencement of an ordinary labour; or if the bag be broken, the child itself may be felt. Of course, if no other fœtus be lodging in the uterus, neither the members nor the cyst of a second child will be distinguishable. To carry your hand into the uterus unnecessarily, is always improper, not to say culpable or criminal, and in these cases generally, the fingers will be quite sufficient to make the examination, without introduction of the whole hand. Thus, then, sometimes by external examination, and sometimes by examining within, but most certainly by combining the two methods of investigation, we may at the bed-side determine, and with certainty too, whether there be or not a second fœtus in the womb. Fool-traps, however, are set for us here as usual, and hence, in managing these investigations, caution becomes necessary. Thus when a child is away, its membranes may fall over the os uteri, and then blood collecting in clots behind the membranes, which push forth into the vagina, something like the bag of a second fœtus may be felt, so that, if guided by internal examination, you neglected to examine externally, also, you might persuade yourselves that there was a plurality of children, when, in fact, there was not. Cases of this kind are not very infrequent; one occurred to Dr. Haighton, and one very remarkable one fell under my own care. By rupturing the membranes, these cases may be easily unmasked; for then the blood comes gushing forth, and, on examining externally, you find that the womb is very completely contracted, so that for a second fœtus there is no room. Nor must it be forgotten, that in examining externally, if careless or incompetent, we may now and then be deceived; for the woman may have an enlargement of the spleen, the liver, the kidneys, the ovary, the last especially, or there may be air or gas, or a great deal of water in the abdomen, and from these causes, after delivery she may remain very large. To guard against this error, to which we are not infrequently obnoxious, follow the advice already given, of feeling for the uterus. Do not content yourselves with simply laying the hand upon the abdomen, but do more than this; feel for the uterus itself — grasp it — ascertain its form and outline,

and then, in general, you will be able to satisfy yourselves whether there be or be not another child in its cavity. A small uterus is to be esteemed a certain disproof of another fœtus; for blighted ova are not worth considering here. A large womb should always lead us to suspect another fœtus, and in dubious cases, make your examination internally. By passing the hand into the uterus, the point may at all times be set at rest; but, in general, this movement is not necessary. Thus much, then, respecting the indication of twins; according as they occur before, during, or after the birth of the child. Study well the signs of the third class, those, I mean, which are observed after birth; not a labour occurs in which it is not proper to consult them; for in every delivery, after the birth of the first child, it becomes our duty to decide whether there be or not another fœtus in the uterus.

It sometimes happens that the twin enters the world so quickly, that you have scarcely time to prepare for its exit from the pelvis; but in other instances it remains in the uterus for hours and days, not a bad symptom occurring; nay, if twin labour have supervened prematurely, the first child leaving the uterus, the womb may close, and the second child may escape at the end of weeks or even months. Of this kind a case occurred to Mr. Newnham of Farnham. However, when the second child remains in the uterus after the first is born, the woman is always liable to floodings, and, therefore, I conceive, we ought not to leave the second child in the uterus, except in cases where the first child has quitted the pelvis prematurely, and a disposition to hemorrhage is not observed to manifest itself. In those cases, then, in which the child is not disposed to come away, the accoucheur will be justified in sooner or later interfering; the risk of flooding rendering it his duty to preside over the birth of the second child, just as he would over that of the first.

If you find, upon the advent of the first child into the world, that there is a second in another membranous receptacle, one of the first operations to be performed is that of rupturing the membranes as soon as you find the bag is bearing down into the vagina towards the external parts, for I would not do it till then. Should the head of the child be lying in the cavity of the pelvis when the membranes are ruptured, in general you have merely to sit at the bedside, not interfering with the birth, more than in natural labour; and should the feet, breech, or transverse presentations occur, you may assist the birth exactly in the same manner as you would the birth of the single fœtus.

But what are you to do, provided there be presentation of the feet, breech, or vertex, the fœtus being indisposed to come away? In this case, I would accede to Denman's rule: for it is better to wait for three or four hours, so as to give the womb an opportunity of acting, and then, should the uterus fail, artificial help becomes justifiable; for so long as the fœtus is in the uterus the patient is exposed to risk, and this help must be given according

to the general principles of midwifery, as already fully explained. But what if you find that the child is lying across the pelvis, the presentation being of the arm, the back, or the shoulder of the child? Why, in these cases, the child lying across in the pelvis, it is your office not to wait in the way which Denman has recommended, but rather to carry your hand into the uterus immediately on rupturing the membranes, in order that you may perform the operation of turning, for, in all probability, this must eventually be effected, and, under such circumstances, the sooner it is effected the better. If you delay your operations, the womb may close and obstruct you; but operating immediately after the first child is in the world, you find the parts are lax, dilated, and unresisting, so that the hand may be passed into the uterus, and with considerable ease.

As the number of ova may rise to four, five, or more, you should always ascertain, after a fœtus escapes from the uterus, whether another remain behind, investigating in the manner already described; and as it is proper to designate the order of the birth, this may be conveniently indicated by a ribbon on the neck.

When all the children are born, then is an excellent time for blundering. You may lay hold of all the umbilical cords; you may begin to pull down, and at once, if thoughtless, you may invert the uterus, and produce a flooding. As many vessels are laid open, you ought, at this stage, to proceed with great caution, managing the delivery in these twin cases just in the same manner as where there is but a single child. Let it be your first office to ascertain that there is no other child in the uterus, for while there is another child in the uterus, in general you are not to remove the placenta. In cases of plurality, one placenta may be common to both children, and where there is more than one placenta, they may be connected with each other marginally, and this is a strong argument against a premature removal; add to this, that if you bring away one placenta while there is another child in the uterus, the uterine contraction being prevented, dangerous bleedings may occur. Hence, then, in this, and all deliveries, a rule of first importance, before you remove the placenta, ascertain that there is no other fœtus in the womb. Well satisfied upon this point, and assuming that no dangerous symptoms occur, wait the hour as usual, in order that the womb may contract, occasionally compressing, and, as it were, shampooing it, so as to urge its contraction, and to ascertain where the contraction has taken place. Further, when the womb is round, hard, and not large, and you are satisfied that there is no risk of inversion or bleeding, you may next proceed to remove the placenta, and this more especially if the insertion of the cord may be felt, or the substance of the placenta is lying forth into the vagina. In some cases it may be proper to withdraw them in succession, but, in general, the better method is to take the two umbilical cords, to coil them together, and then to abstract them at once; taking the cord in the right hand and the substance of the placenta in the left,

and proceeding afterwards as in ordinary labours. Having done this, lay your hand on the uterus, and feel that it is contracted, and in its natural situation, behind the bladder. Lay the placentæ on a cloth, and examine them, that you may assure yourselves that there is no part left behind in the uterus.

Women require more than ordinary care after twin deliveries. The children, if more than two, are, I believe, seldom reared; they, however, sometimes live. I myself had a very handsome young fellow for a pupil, who told me he was one of three, all of whom had lived to man's estate.

Two errors there are, or blunders rather, which you may commit in the managing these twin cases; the one, that of bringing away the placenta of the first, without satisfying yourselves whether or not there is another child, the child that is left behind perishing, perhaps, in consequence; the second, that of rising from the bedside, smiling and congratulating the patient; then leaving the room with courtly incurvation, and 'Good-bye, dear madam' — a second child entering the world as soon as you have crossed the threshold.

LECTURE XXXV.

DELIVERY AFTER THE DEATH OF THE MOTHER.

You are not to suppose that as soon as the life of the mother becomes extinguished, the life of the fœtus is extinguished also; for it is a well-ascertained fact, that children will continue to live in utero for minutes, or even half an hour, after the maternal circulation is stopped. When the death of the mother creeps on her gradually, whether from bleedings or other causes, the chance of saving the child by removal from the body of its deceased parent, is exceedingly small; nor is it unlikely in these cases, that the fœtus dies before its parent; but where the death of the mother occurs in consequence of apoplexy, or some sudden accident incident to the most vigorous health, the probability that the fœtus may survive the mother is much greater. What may be the longest time that the child may continue to live in the liquor amnii, after the circulation of the mother is stopped, is a very interesting problem, well deserving of your consideration. In the country, more especially in a farming district, you may have an opportunity of making your observations on the sheep or cow when with young; and after death takes place, whether by accident or intentionally, it would be easy to observe, in these cases, how long a term afterwards the fœtus is capable of resuscitation. Facts are not wanting, which may encourage us to hope, that the child, within the body

of the deceased parent, may live even for a considerable time. To Mr. Moseley I am indebted for the history of a *heifer* which, in the end of its pregnancy, died in consequence of some accident in a farm-yard; in about three-quarters of an hour afterwards it was flayed and embowelled, during which operation it was observed, that there was some little motion in the uterus; this led to closer inspection, when, on laying open the abdomen and uterus, the calf was taken out in a state of suspended animation, from which, in the course of a few hours, it became completely resuscitated. Thus, then, Mr. Moseley's statement, which, I trust, is to be relied upon in all its parts, furnishes us with an interesting example of the prolongation of the life of the fœtus for three-quarters of an hour after the vitality of the parent was extinct.

It sometimes happens that a fœtus is still-born, and in that condition it may remain dead, to appearance, for twenty, thirty, or forty minutes, or even for a longer time than this. Now, while it is in this still condition, there is no obvious respiration or circulation, yet, nevertheless, though it is in a state very nearly approximated to that of a person after death, it is now and then very unexpectedly resuscitated. I have myself resuscitated a child that had been lying in this state, without any obvious signs of active life, for more than twenty minutes together; and Mr. Tomkins, of Yeovil, in Somersetshire, gave me a case in which a fœtus, after lying still for more than an hour, as measured by the watch, was nevertheless resuscitated by the artificial respiration; and as Mr. Tomkins is a very accurate observer, I can rely on his statement with more than average confidence. Now if a fœtus lies in this way after birth, apparently dead for an hour, to be resuscitated, however, by artificial respiration, I think it is not unreasonable to hope that a fœtus might remain equally long in utero, without, however, getting beyond the reach of resuscitation; if by the Cæsarean operation, or otherwise, it could be brought forth, so as to secure a trial of the remedies which I shall presently enumerate. To be short, then, in the present state of our facts and knowledge, we may reasonably hope, if a child be taken out of the uterus within half an hour or an hour after the death of the mother, and more especially if the mother have perished by a sudden and violent death, that the life of that child may be preserved. Some three or four years ago, a woman, in the end of her pregnancy, crossing a street near this hospital, was run down by one of the stages; the wheel of which passing over the body, divided the liver into two pieces, death following in the course of a few minutes afterwards. This poor creature was brought into the hospital, and Mr. Green, who chanced to be going round at the time, gave it as his opinion that the Cæsarean operation ought to be performed. I was accordingly sent for, to give a little obstetric assistance, when, within thirteen minutes from the last respiration of the deceased, the abdomen was laid open; and the child was taken out within fifteen minutes from the last respiration. The lungs were inflated by means of the

tracheal pipe — my principal resort,— the warm bath also being afterwards tried; in thirteen minutes more, the child first began to breathe a little, and the umbilical cord began to act; and by perseverance in this method, the fœtus was completely resuscitated; it lived for a day or two, and would probably have been living still, had it been more judiciously managed by those to whose care it was committed. Should you be called, then, to a case in which the parent had suddenly deceased but a short time before, it is then highly probable that the fœtus is alive; and should motion be perceived in the abdomen, there can then be no further doubt, and, of course, removal must be made the subject of deliberation. Now there are two ways in which, after the death of the mother, the child may be taken away; the one is by making an opening into the abdomen with a razor, or any other convenient instrument, this method, on the whole, being the shortest and the best; the other turns on the introduction of the hand into the uterine cavity, and the abstraction of the fœtus by the operation of turning. This operation may easily be performed here, as the passages may be dilated with more force and celerity, provided the mother be really and thoroughly dead; though even in these cases, such is my strong dislike to obstetric violence, that I would not employ a greater degree of effort than is absolutely necessary in order to get the fœtus away. *Arte, non vi.* Here let me observe, that it is only when the woman is dead beyond all doubt and controversy, that deliveries in these wretched cases ought, I conceive, for one moment to be thought of. Who that has a heart of flesh in his bosom could coolly sit down in a real case to argue for the advantage to be derived to the fœtus from the performance of the Cæsarean incisions, before the maternal life is totally and beyond all doubt extinct? Who that has a heart of flesh in his bosom, could have firmness sufficient to perform his operations under such circumstances? Who could look on the dying eyes of his patient, without suffering the knife to drop from his hand? Who would himself like to be disturbed in such a moment? As long as men are surgeons, surely surgeons may continue to be men; and while they make it their duty to subject their feelings to their reason, doubtless it is still their duty to act under that moderated influence of the feelings which gives the last finish to the manly character.

INFLAMMATION IN CONJUNCTION WITH PREGNANCY.

In the end of the pregnancy, you will sometimes find inflammations taking place in the thorax, abdomen, or head, more especially of the thorax or abdomen. If those inflammations be unattended with any extraordinary symptoms, which probably they will be, you should treat them precisely in the same manner as you would an inflammation in which there is no pregnancy; because, though it may be true that your remedies, and especially large bleedings or purgings, may not altogether suit the pregnant

condition, yet, nevertheless, where you have inflammation of the thorax or abdomen, it is absolutely necessary that such inflammation should be subdued. It is to be remembered, however, that where there is an inflammation going forward, and where a great deal of blood is taken away, not very uncommonly miscarriages and floodings occur; nor is it to be forgotten, that during the abstraction of the placenta and the membranes, further and large quantities of blood may be discharged from the uterus, which, with the previous venesection, may sink the patient, at least, unless transfusion be interposed. Three cases of inflammation in the end of pregnancy I have had occasion to see; two of those cases did very well; and in the third, in which the inflammation supervened but a short time before delivery, the inflammatory action was completely subdued, but in a few days afterwards parturition commenced, much blood was lost, and ultimately the patient died.

You will sometimes find, what I have seen myself, an inflammation concurrent with parturition; perhaps inflammation begins with delivery, or it may supervene after the process is begun. When delivery is coming on, and there is inflammation in the abdomen, if you do not perceive that the abdominal inflammation is aggravated by the labour, meddlesome midwifery being bad, I would not have you to interfere. On the other hand, however, if it is clearly obvious that the labour is hurrying the inflammatory action, then the more promptly delivery is terminated the better. If the head be within the reach of instruments, you may endeavour to accelerate the delivery by the use of the lever or the forceps, or, in some rarer cases, by the perforator; or, if the head be above the brim, then the undesirable operation of turning must be adopted, and by it the fœtus may be brought away.

It may not be amiss to note here that where women have spasmodic and inflammatory pains, about the lower part of the abdomen more especially, they are mistaken sometimes for the pains of parturition. That they are not the pains of parturition, we know by their seat, by the tenderness of the parts, by their wanting the ordinary regularity of return; that they are the pains of parturition may be safely inferred, when we find, on examination, that the os uteri is becoming more and more dilated, that during the pain the membranes are tense, and lax during the absence of pain; or, that the head bears down on the tips of the fingers during pain, and recedes during the absence of pain. By these characteristics it is that I myself, in general, judge.

PREGNANCY IN CONJUNCTION WITH FEVER.

In the end of pregnancy, or during delivery, it sometimes happens that fevers supervene; and, on this variety of disease, it may be now proper to add a few remarks. When fever occurs, in the end of pregnancy, if the attack be severe, it is not improbable

that the expulsion of the child may take place; and for this accident, therefore, you ought to be prepared. So long, however, as there are no peculiar obstetric symptoms occurring, so long it is unnecessary you should interfere; and even if the delivery should supervene, the process ought to be conducted on the general principles of midwifery. I need scarcely repeat what I have so often asserted, I mean, that a meddlesome midwifery is bad; and this being admitted, it follows that, in these cases of fever, the mere concurrence of the disease with the end of gestation, is, in itself, no valid argument why you should interpose. Should there be a concurrence of any other urgent symptom, which delivery alone can relieve, then assist if you please, provided you can assist with safety; but, remember, that fever alone will not justify your interference.

If fever concur with *parturition*, in general, I believe, labour will proceed well enough, though it may frequently linger, the pains not being so frequent and powerful. If floodings supervene, or other dangerous symptoms, you may then assist artificially, helping with your instruments, the lever, forceps, or perforator, or turning the fœtus, according to the circumstances of the case; but if, on the other hand, the labour lingers, and no symptom of danger concur, then, agreeably to the doctrine already laid down, you had better trust to the natural efforts, of which you are never hastily to despair. If the fever be *infectious*, and it becomes necessary to turn the child, some precaution becomes necessary. A friend of mine being engaged in turning a child, in a case where the mother laboured under fever of the typhoid kind; he to all appearance caught the disease from his patient, and it had very nearly cost him his life. If a woman be labouring under the measles, for instance, or the scarlet fever, and you have not been secured by a previous attack, it becomes necessary that you be upon your guard; I think you would be doing but justice to yourselves and your friends, were you to send for a practitioner who has had those affections already, because, if it can be avoided, valuable lives ought not to be exposed; if, however, it become your duty to act, of course you must, at all risks, never retreat from your post; fall we all must sooner or later, nor can we fall better than in the ranks. In cases of this kind, however, it may be proper to have the patient lifted on to another bed; or, if this cannot be done, in order to keep down the steaming vapour, it may not be amiss to raise the patient a little, and to spread out two or three blankets beneath her, before you begin your operations. The prognosis, in these cases, is not favourable.

EXTRA-UTERINE PREGNANCY.

In general, when women conceive, the ovum takes place as it ought to do, in the uterine cavity, but sometimes it lodges in the peritoneal sac, and far more frequently in the follopian tube, or the

ovary; and this it is that constitutes the *extra-uterine gestation*, divided into *three* varieties, the *tubal*, the *ovarian*, and the *ventral*, according to the situation of the ovum. To these three varieties may be added a fourth, first shown me by Dr. Ramsbotham, the utero-tubular, as it may be called, in which the fœtus lodges in the uterine portion of the tube.

I have myself seen a fœtus, on the whole not imperfectly formed, about the size of six or seven months, and which was taken from the body of a boy where it lay in a sac, in communication with the child's duodenum, the boy being pregnant. It being, therefore, not impossible for a fœtus to form within the body of a male, in such a situation too, I cannot accede to the opinion advanced by some, namely, that it is impossible that a fœtus should form in women within the peritoneal sac among the abdominal viscera. The probability is, that this accident is possible, but that it is of very rare occurrence; and I think with Dr. Merriman, that it is not impossible that some of those cases that have been looked upon as ventral pregnancy, have, in reality, been cases of rupture, the case having been mistaken for ventral pregnancy, in consequence of the discovery of the ovum after death among the abdominal viscera, the rent in the womb being overlooked.

Ventral pregnancy being rare, of its symptoms I personally know nothing; but it is said that, in those cases, the placenta and fœtus form, in the ordinary way, the bloodvessels of the maternal viscera enlarging wherever the placenta chances to adhere.

When patients die the victims of ovarian pregnancy, a disease which is far more common, we sometimes find a great deal of blood effused among the viscera, with the fœtus, perhaps, not bigger than the thumb, and an ovary laid open by laceration. More generally, however, in these cases, the ovary becomes as large as the uterus, at the seventh, eighth, or ninth month of pregnancy, when it is found to contain a full-sized fœtus, with a placenta often remarkable for its tenuity, or this fœtus becomes putrid, and is contained in a sort of abscess, where its softer parts gradually disappear, or, in the course of years, it is transmuted into fat or bone.

When tubular pregnancy has been the cause of death, it rarely happens that the fallopian tube becomes as large as in the ovarian pregnancy. I have never seen any case of tubular pregnancy, in which the tube was of great size; more generally this canal enlarges to about the size of a small fist, sometimes to the size of a pullet's egg only, and, in the early part of gestation, say in the second or third month, this cyst bursting open, the child escapes into the peritoneal sac, and the woman suddenly perishes by an internal hemorrhage. Many women, I have little doubt, die in this way, but being buried without examination, the real cause of their death is never ascertained. Three or four tubal gestations of this kind have taken place within the circle of my own obstetric acquaintance, whence I infer that the case is by no means rare.

In extra-uterine pregnancy, the state of the womb varies somewhat, but it is remarkable that it generally becomes two or three times as large as in its virgin condition. In some cases the tunica decidua is found to form in its cavity, much in the same way as if the fœtus were there; this, however, is by no means constant. Mr. Langstaff examined a case in which there was no well-formed tunica decidua, and I have myself seen two tubal cases, in which the decidua was wanting; while, in a third case which I saw, in which the patient died between the second and third month, the tunica decidua was very distinctly produced in the uterus.

When extra-uterine pregnancy occurs, whether of the ovarian, tubular, or perhaps of the ventral kind, the symptoms by which it is marked are not always very intelligible in the earlier months, whence it is not improbable, should you meet with a case of this kind, that you may not recognise it till after the decease of the patient. In the early months of extra-uterine gestation, the woman believes herself to be pregnant, for she observes all the ordinary signs; but in ventral pregnancy, according to Burns, there is more irritation than usual in the alimentary tube. In ovarian pregnancy, too, and more certainly in the tubal, in connexion with this pregnancy in the earlier months, there is a great deal of anomalous tenderness and pain and spasms, which is referred to one or other side of the abdomen, its lower part more especially; and after these symptoms have continued for some time, suddenly, perhaps, the patient is seized with a fit of collapse, under which she sinks, and this, perhaps, not always in consequence of abdominal hemorrhage.

Gestation advancing to the latter months, as in the ovarian pregnancy more especially, the case may still remain obscure; the patient believes herself to be pregnant, but perhaps she exceeds the ordinary term of gestation, proceeding, perhaps, for ten, twelve, or fourteen months, before any very conspicuous changes occur. After the full term of gestation is passed away, however, it may be, she is seized, sometimes earlier and sometimes later, with pains very like parturition, so that she fancies herself in labour; under these pains, in some cases very slight, and in others very severe, there comes away a little blood, and if the tunica decidua is formed, it is expelled also, but of course no part of the fœtus, this not being contained within the uterine cavity. If, then, the practitioner examines carefully at this time, he finds that the tunica decidua is expelled alone, and, inserting a finger or two into the uterus, easily searched in this manner, he finds it enlarged and opened a little, but without the vestige of a child there. These abortive attempts at parturition usually cease in a few weeks; but in some cases, and in one of an analogous kind which I myself saw, the patient may suffer in this way for years. The woman to whom I allude, a native of Aberdeen, was anxious to have a sort of Cæsarean operation performed, that she might either get rid of her pains or her life, and she came to

London for that purpose, the surgeons of Aberdeen (as she said) having refused, and very properly refused, to perform the operation under the circumstances in which she was placed. Her sufferings had been protracted, and dreadful indeed, so much so that she had taken a razor, and had attempted to perform the operation herself, and she showed me the scar.

Before the parturient efforts occur, or after these symptoms are gradually worn away, the patient is liable to be attacked with inflammation in the cyst, where the fœtus is; this giving rise to tenderness and pains, to adhesions, suppurations, and absorptions; and under these operations the cyst opens on the abdominal surface, or less desirably into the vagina or rectum, and, morsel by morsel, the fœtus may be expelled. In other cases, instead of terminating in this manner, the extra-uterine pregnancy is brought to its close in a way very different; nor is this the least interesting. In this termination of the disease the ovum lies inert within the abdomen for ten, twenty, and thirty years, or longer; and during this time, as observed before, it becomes gradually changed into a bony or sebaceous substance, occasioning the patient little further inconvenience than that which arises from its bulk and weight. In this state of the genitals another impregnation may, I believe, occur.

I have considered these extra-uterine cases in a merely cursory manner, as, in the present state of our knowledge, they are rather matters of curiosity than the subjects of much active treatment. If, in the earlier months, the woman have spasmodic or inflammatory pains, you must treat them on general principles. I have nothing peculiar to recommend for them; they are, however, both severe and dangerous. If you suspect an extra-uterine pregnancy, you ought to mention to the friends the chance of sudden death from internal bleedings; and should that occur, this previous intimation to the friends may, with reason, tend to preserve their confidence in your skill and knowledge. If in the end of gestation a great deal of parturient effort occur, and the wound be found to contain nothing but the tunica decidua, and the abdomen is as large as in a pregnancy of nine months, and the woman have exhibited previously all the indications of pregnancy, there can be little, if any, doubt respecting the nature of the case, and anodynes and opium ought to be administered. In such cases, too, it might come to be a consideration, whether a sort of Cæsarean operation ought to be performed, or, at least, whether an opening should be made into the abdomen to take out the child. On the whole, however, considering the danger of the incisions and the risk of a fatal bleeding internally, when the extra-uterine placenta is taken away, abdominal incision seems to promise but very little success, and, therefore, I should be averse to try it. If the fœtus, piece by piece, is coming away from the abdomen, the best office which you can render the patient is, nothing forbidding, to enlarge the opening, and to take out any

parts you can without violence. Sometimes the discharge of the fœtus occupies many months, or some years, and during all that time the patient is kept in a state of cachexia, though, in some cases, she is relieved in a few months. Now if, by dilating prudently the orifice of the cyst, and removing the bones with forceps, or otherwise, you can accelerate the evacuation and shorten this period, you may render the patient a very effectual service.

After what I have observed respecting the history and treatment of this disease, it is not necessary that I should say much apart respecting the characteristics of it, for these have been involved, in good measure, in the statement I have already made. In the earlier months of extra-uterine pregnancy, say in the first, second, third, fourth, or fifth, I have observed already that the characters are so obscure, that it may not be very easily recognised; but if the woman, after all the signs of pregnancy, be seized with severe, but anomalous pains and spasms of the abdomen, together with fits of fainting and collapse, you may always suspect a tubal pregnancy more especially, and sudden death, in the earlier months, is in a high degree probable. When the full pains of parturition come on about the ninth or tenth month, then there is a fair cause for suspecting that the pregnancy is extra-uterine. The woman, up to this moment, has believed herself to be pregnant in the ordinary way, and now she supposes herself to be in labour: if you at once examine the abdomen, you find it much of the usual form, its enlargement, however, tending laterally; but if you empty the bladder, and make a careful examination through the abdominal coverings, you may, at least, sometimes distinctly feel the fundus of the uterus, just above the symphysis pubis, large as after recent delivery; and if you can do this, then there is a good proof that the fœtus is not there; moreover, if you can slide one or two fingers along the neck of the womb, after the decidua comes away, and if you thus insert your fingers into the uterus, you may thus clearly ascertain the absence of the fœtus; so that by examining the uterus after the expulsion of the tunica decidua, by feeling the fundus of the uterus above the symphysis pubis, and by finding that the woman has all the pains of delivery, you obtain pretty decisive characteristics that the pregnancy is extra-uterine. Of course, if inflammation and suppuration ensue, and you have a discharge of the fœtus piece by piece, there can be no doubt of the case. The only difficulty of detecting it will be while the inflammation is going on, and before the discharge of the fœtus; a difficulty of less importance, because, while the inflammation is proceeding, it must be treated on general medical principles.

If the woman survive, the fœtus may come away, after months or years, piece by piece; and its bones may be discharged from the rectum.

LECTURE XXXVI.

PUERPERAL FEVER.

Women after their delivery in general do perfectly well, although no attentions are paid to them; and where the constitution is good, and the circumstances are not extraordinary, I believe the less they are interfered with the better. Although, however, as every reflecting man knows this position holds good in general, yet it is no less certain that, after parturition, women are sometimes affected with some of the most dreadful diseases to which the human frame is liable; disorder of the mental functions, for example, and that puerperal fever which so speedily terminates in death. This being the case, then, it is well worth our while to give a little attention to the management of the puerperal state; and of this condition of the system after delivery I propose to treat under three different titles; the diseases of puerperal women, I mean; the diseases of infants; and the management of the puerperal state in those cases in which the woman, on the whole, is recovering in the most favourable manner.

Of all the diseases to which the puerperal condition is liable; by far the most formidable is the fever of which you have heard so much — the puerperal plague, as it might be called, so sudden in its attack, so rapid in its progress, so fatal in its effects, and so choice in its victims; among the young and the beautiful, assailing those who are the most endeared to us — those young wives and mothers, the moulds of the human species, who, in European society at least, form not the least valuable, nor the least interesting part of the domestic circle. On the second or third day it is, reckoning that of delivery as the first, that the puerperal fever usually makes its first onset; on a Tuesday or Wednesday, for example, if the child was born on a Monday.

Death, however, I have known to occur, with all the symptoms of puerperal fever, within the first four-and-twenty hours after parturition; and Dr. Haighton used to relate the case of a woman who perished under a puerperal fever, which commenced ten or twelve days after delivery; indeed, if my memory serve, after the patient had made her appearance in the drawing-room. The later the attack, the less is the pertinacity of the symptoms; and the fever which seizes the patient on the fifth day, is much less likely to prove fatal than that which commences on the first.

It is with chills and heats that the puerperal fever usually commences; and those chills, felt more especially along the back, arise, I suppose, from the peculiar condition of the spinal marrow; in the lumbar region they are, I believe, rarely perceived, but frequently about the shoulders and the neck. In the intensity of the chill, there is considerable variety; for some women, when attacked,

will chatter as in an ague fit; while, in others, the refrigeration is so slight, that unless you search them with the accuracy of a sectarian catechist, you may not be able to find out that there have been any chills at all; it is said that the fever may sometimes assail without chill; and, it is not perhaps impossible, that half asleep at the time, the patient may not perceive its occurrence. The intensity of the chill is no measure of the subsequent vehemence of the fever; fierce fever may follow mild chills, or the chill may be violent; indeed, I incline to suspect that when the disease opens in this mild manner, there is more cause for fearing its future progress — *ipsâ silentiâ terret.*

About the time of the rigour, the woman complains of abdominal pains, very slight sometimes, so that their detection has its difficulties; and at others so severe, that the touch of the finger is regarded with apprehension, and the weight of the coverlet is complained of as a distress and a burthen. All over the abdomen these pains may be felt above, below, to the right, to the left, in the region of the diaphragm, and in the lumbar region; this diffusion, however, is neither constant nor frequent, and you will find, especially in the less malignant varieties of the disease, that it is in the region of the navel, and more especially below it, that the patient complains; and hence, whenever you suspect the puerperal fever, you should immediately lay your hand upon the abdomen below the navel, in the region of the womb. In some varieties of the epidemic, severe after-pain is not unfrequently felt; so that, as soon as you enter the chamber on your second visit, the nurse addresses you by saying, "Sir, my mistress has suffered a great deal from the after-pains." You approach the bed, and you then perceive the rising cloud. This pain, I suspect, is felt most severely, where the uterine peritoneum is the seat of inflammation, and where the inflammation has a tendency to spread down into the substance of the uterus. Mild fever may accompany intense pain, and the reverse. A circumscribed pain is always favourable, but much is to be apprehended when the pain and tenderness are diffused extensively over the surface of the abdomen, although the intensity of the pain be slight.

An excellent characteristic of the puerperal fever is derived from the pulse, which is always frequent. In this disease, it scarcely ever happens that you have a pulse as slow as 115 in a minute, unless the disease be giving way to remedy; and generally it rises as high as 120, 130, or 140, and I have myself counted pulses 165 or 170 in the minute. Those are mistaken who tell us that these frequent pulses cannot be numbered. You may count, in the rabbit, when agitated, a pulse of 300; and, of course, there can be no difficulty of numeration arising from mere number, while the pulse, in the human subject, is below 200.

The symptoms which I have here mentioned I have purposely detached and separated from the rest, because I look upon them as constituting, in good measure, the character of the disease. If,

upon the second or third day of delivery, the patient is attacked with chills and heats, and abdominal pains and tenderness, and if, together with these symptoms, you find the pulse rising above the healthy level to 130, 140, or 150, or 160, in the minute, and more especially if the puerperal fever is prevalent at the time, provided you make those diagnostics which I shall hereafter expose to your consideration; there can, then, be little doubt respecting the nature of the case. Besides these principal and pathognomonic symptoms, however, we find the patient is affected with others of less importance, and vomiting may occur with purgings — headaches — increase of the animal temperature — and failures of the milk. Cephalalgia, in some epidemics, has been a constant symptom; and Lowder, with others, was disposed to place it among the pathognomonic symptoms; but cases have occurred within my own observation, in which no headaches at all have been felt, or, at all events, where the attack has been so slight, that it could scarcely deserve attention as a characteristic symptom.

Like some other diseases, the puerperal fever is in its *duration* somewhat unfixed; it may last, especially if we comprise the cachexia which follows it, for many days; or where no bleeding, or other active remedy has been employed, it *may* destroy the patient, which it has done, under my own observation, within twenty-four hours from the commencement of the disease, the plague itself being scarcely more rapid or more fatal in its progress. Three or four days, not to say five or six, may be the average duration of this affection; — I speak here of the epidemic.

In different modes the disease may be brought to its close; and sometimes we have the great satisfaction of seeing it terminate in a resolution of the inflammations under which, after symptoms the most frightful and alarming, danger gradually vanishes, and the pulse sinks steadily to 140, 130, 120, or 110, in the minute; and the other symptoms give way in like manner, and the patient, a few hours before on the verge of dissolution, is now brought into a state of comparative security. Too frequently, however, it happens, (and I regret to add, too, under the best average treatment,) that the disease terminates in a very different manner; the extremities become cool, the pains in a great measure cease, the mind remains tranquil, and hopes of recovery flatter, and the patient, perhaps, talks of the little schemes in which she is to be engaged on her re-establishment, and everything, in short, is promising to our wishes, excepting the pulse, and there you find the token of death. Whenever, in conjunction with these insidious and adulatory symptoms, you perceive a pulse of 150, or 160, in a minute, the worst consequences are, I conceive, to be apprehended. Now this termination, under symptoms so flattering, is by no means very uncommon; and I dwell on it the more because I am anxious that it should not be forgotten; for it has now and then happened with physicians of eminence, men who, whether they have reflected much or not, must certainly have seen much

of practice; that, notwithstanding all their experience, they have been deceived by these symptoms, and have pronounced the patient secure from danger, although, perhaps, she has died in the course of one or two hours afterwards; nor have pomp and ambition of manner always been wanting to give magnificence to the error, which, after all, may well be pardoned in those who have seen but little of this dreadful disease. It must be acknowledged, however, that the lofty neglect of THE VOCATION may expose professional dignity to rude assaults.

There is yet a third mode in which the puerperal fever may terminate, and that is by a sort of cachexia. In this termination, the patient becomes liberated from her more pressing symptoms, and the pulse gets down to 130, or 120, or 115, in the minute, and there is a disposition to vomitings, to purgings, to colliquative sweatings, and to exacerbation, and remissions of the feverish symptoms. These symptoms continuing for several days, the patient recovers under a gradual cessation of them; or the strength, notwithstanding some gleaming amendments, declines daily, and, at the end of a week or two, the patient sinks. In these cases, whether the patient sink or recover under cachexia, I always suspect that the inflammation of the peritoneum has given rise to disorganization, and adhesion of certain folds of the intestines; and that the cause of the disease is the inflammation and irritation that is going on in those parts, the original parts also being slightly affected, perhaps, but still not in the same violent manner that they are where the patient labours under the dangerous and violent attack of the puerperal fever.

Under the best method of treatment, puerperal fever too often proves fatal. A variety of means have been proposed and tried in combating this malady, but when we get to the bed-side, we too often find our master. In puerperal fever, we have been advised to commit the result to tonics — to purging — to mercury — to turpentine — to emetics — to bloodletting conjoined with calomel, and the more copious doses of opium. In the malignant form of the disease, I fear, your patient will die under the best known treatment, so that there seems to be but little room for choice; but in the milder or inflammatory varieties of the epidemic, I think, on the whole, — for after all I have seen, I speak with hesitation — on the whole, I think, that your most effectual remedies will be venesection, calomel, and opium.

In using venesection, whether in the milder or severer forms of the disease, it is of the greatest importance to commence the bleeding as early as may be. I have laid it down as a sort of rule in my own practice, that, if in the less vehement attacks, the bleeding be commenced within six hours after the chill, your patient will be often saved, and if within twelve hours, not infrequently; but that if you do not begin till twenty-four hours are passed away, in epidemic cases the patient will usually die. With regard to the quantity of blood you are to abstract, it must of necessity vary some-

what with the condition of the patient, and the vehemence of the disease; yet it is well to have an average, and this may, I think, range between twenty-five and thirty-five ounces. In taking away this blood, you will sometimes find your patient becomes faint, even before many ounces have been drawn. Now if the faintness is permanent, lasting for four or five hours, (which in general it does *not*,) it may be considered to be of great benefit to the patient; but if, on the other hand, it is merely temporary, I believe it has often occasioned women to lose their lives, by intimidating the operator, and preventing him, when bleeding, from abstracting the necessary quantity. Be it remembered, then, in puerperal fever, that if venesection be begun, you must not act with irresolution. In cases like these, when syncope occurs, I would recommend you to remain with the patient until you have ascertained whether the fainting be of short time only, or permanent; and if the circulation return after a short interval, should the original source fail, you may open the vein afresh.

From four to eight hours after you have bled the patient the first time, you will, I think, generally be able to determine whether the bleeding, in conjunction with the other practices, may or may not be sufficient to subdue the disease; and, therefore, I should lay it down as a general rule in a disease which proceeds with such rapidity, that within six or seven hours after the first venesection, you ought to come to your determination whether you will have recourse to a second venesection; and an anxious and nice point it may be to decide. If you are placed in the midst of a large circle of obstetric friends, endeavour, by all means, to have another opinion, as the decision may be delicate, and a divided responsibility may not be undesirable; but if your excellences, or more pardonable defects, have made that circle small, you may find it necessary to decide on your own judgment only; and my own method of determining the point is the following: counting round the second circle, if I find that the pulse, which was sunk after the bleeding, perhaps, to 120 or 115, has mounted again to 130, 40, or 50 in the minute, perhaps to the same number as before the operation — though not alone decisive, yet, as far as it goes, this symptom to me appears to indicate that further depletion will be required; and, on the other hand, if the pulse be sunk to 110, and be remaining there, I feel unwilling to have recourse to the lancet — it is wise to let well alone. After solicitously counting the pulse, I should proceed to a careful examination of the abdomen; and if I found that the abdomen was painful and tender, even though the pain and the tenderness were somewhat obscure, I should look upon these symptoms as an argument for the lancet; on the other hand, rejecting the use of this instrument, if tenderness and soreness of the abdomen were wholly or in great measure subsided. If you have prudently refrained, during the first few hours, from the application of a blister, the abdomen may be easily examined, by laying your hand above the symphysis

pubis, and pressing there; and by directing the patient to draw her knees towards the bosom, or to attempt a turn in the bed, or to assume the sedentary posture, when, if tenderness exist, it may be easily detected, provided the examination be conducted with patience and attention. Observe, that mere tenderness, or pain of the abdomen, without frequency of the pulse, is no valid reason for the further abstraction of blood from the arm; and further, that mere frequency of the pulse, without the pain or tenderness of the abdomen, is not a satisfactory warrant for this use of the lancet. It is only where those two symptoms are met with in conjunction, that I feel satisfied that inflammation is proceeding within the peritoneum, and that I am justified in acting; when, for example, there is tenderness and pain of the abdomen, and when, in conjunction with this, the pulse is at 125, 130, 135, or more in the minute. Perhaps you will ask me here, whether it will not be proper to inspect the blood you have already taken away? Certainly this is proper; and should you find it cupped and buffy, this is a collateral argument in favour of further bleeding; but, remember, that the absence of the inflammatory appearance of the blood, if you have bled early, is no certain reason why you should not bleed a second time, provided you find all the other inflammatory symptoms are present; for I have myself, in some two or three cases, on bleeding early, detected no buffy or cupped appearance on the first blood, although the blood afterwards drawn has appeared inflammatory in high degree. It is better at each bleeding to receive the blood in at least two or three different cups.

In about six or eight hours after the second abstraction of blood, you must come to a determination whether you will or not bleed a third time — deciding the point sooner or later, according to the symptoms; and here let me observe, that your decision respecting the third bleeding is more important and more difficult than the determination respecting the second; for where women sink under puerperal fever, it is commonly under the third bleeding that they appear to succumb. If you are resolved on depletion in a case of puerperal fever, you ought not to wait for one minute for the advice of another respecting the *first* bleeding — moments are precious; and, in the uncertainty of medicine, there is not such risk from a first bleeding, as may make it your duty to pause; but in coming to a determination whether you shall or not bleed a third time, unless your experience is large, another opinion is desirable, provided an opinion of value may be obtained; for if patients really sink from over-bleeding, it is, I suspect, this third venesection which destroys. Whether, as a general practice, it be wise to bleed a third time at all, may, I think, be disputed: for if our two first bleedings fail, we may reasonably be discouraged, and doubt the efficacy of a third. I think, however, that I have sometimes seen the third bleeding put a close to the inflammation; and as I cannot deny its occasional necessity, I

proceed to prescribe rules for its management. In determining, then, whether we ought to bleed a third time, we must be guided, in good measure, by the same indications as in the determination respecting the second bleeding; and if the pulse is not above 115, or if the abdomen is not tender, or if symptoms of collapse are beginning to appear, you must abstain from the lancet; but if there are no symptoms of collapse, and the belly is tender, and the pulse is 120, 30, 40, 50, or more in the minute, you may bleed; though from the use of venesection I fear much benefit is not to be expected. Beware of bleeding, if collapse is begun, and in epidemic cases this is not improbable. Beware of rash bleeding, provided the two first bleedings have together exceeded fifty ounces or more. Before you take more blood, pray pause, think, and act, with your eyes wide open. Tenderness of the abdomen *alone*, without a frequent pulse, perhaps frequent pulse *alone*, without tenderness of the abdomen, will not justify bleeding: an average quantity for a third bleeding may be ten or twelve ounces; ten or twelve leeches may be substituted for venesection in the more doubtful cases. If the *pour* and the *contre*, the arguments for and against bleeding a third time, are found nearly to countervail each other, perhaps it is better to decide against it. I have more than once seen patients apparently sinking from the application of twenty or thirty leeches, after one or two great bleedings had been premised; again, therefore, beware.

To these remarks, let me add one or two of a general kind. It is highly desirable that the whole quantity of blood drawn in this disease should be abstracted within the first twenty-four hours after the chill; and as to the whole quantity which in all the bleedings it may be necessary to withdraw, I think it may average between forty and fifty ounces. Sixty or more ounces have been sometimes taken with apparent benefit; but, hearing of these anomalous successes, I am sometimes reminded of the sneer of the Grecian skeptic, who, on being shown the votive representation of an escape from shipwreck, with a remark from the priest on the efficacy of pagan supplication, exclaimed, not without scandalous and irreligious levity, "Who paints for those who sink?"

In puerperal fever we have been recommended to make trial of calomel and opium, in conjunction with venesection; and I have myself, in treating this disease, made use of opium in the larger doses, without observing any resulting ill consequences; and it seems not improbable, that it really does possess some efficacy in lowering the irritability of the vascular system, and in extinguishing the inflammation. As opium, then, does no obvious injury, and may, perhaps, be of service, it deserves a fair trial; and it may be better, when giving it, to administer the larger doses, say of five or ten grains in the course of the four-and-twenty hours, provided you carefully watch the patient occasionally. I have given larger quantities than this, and apparently without mischief;

but it is to be remembered, that there are idiosyncrasies which may render these larger doses peculiarly dangerous. In large flooding cases, where opium is given, we find that the patients are not affected by given quantities of this anodyne, in the same manner as they would be if they were in a state of florid health, and in a full and lively condition. Now it is, in a measure, to this state of inanition patients are reduced by the bleeding, and this may be a reason why the larger doses of opium may not so much affect them. Understand then, that where the case is highly dangerous, so as to justify an active remedy, and where you are watching your patient sedulously, perhaps passing a great part of the day in the bed-room, or near the bed-side, you may venture to give opium in the larger quantity, say five or ten grains of the extract of opium in the course of twenty-four hours, in divided doses; the remedy being administered not so much by weight as according to the effect produced. There are two modes in which opium may be employed in this fever; you may begin the administration of it directly after the first bleeding, so that the venesection and the use of opium proceed hand in hand; or, again, if you bleed a third time, you may wait till your third bleeding, which will be about sixteen hours from the chill, and then commence with your anodyne. Of the use of opium, I have not seen enough to decide peremptorily for you, which of these two methods is to be considered the best: but certainly, when trying the remedies myself, I should give the preference to the first.

With respect to calomel, I may remark, that this also may be given in two ways. Guarded with opium, ten grains, or more, may be administered every six hours, till the mouth be affected — a bold practice, which I have seen myself tried without obvious ill consequences. In one case forty ounces of blood had been abstracted, and when forty grains of calomel had been administered, the mouth became sore; the inflammation, however, continued, and ultimately destroyed the patient. But a gentler, and perhaps safer practice, consists in the administration of a grain of calomel every three or four hours, and in conjunction with the opium, which may be conveniently taken at the same time.

Here, then, is one principal method of treating this most fatal disease, by venesection, calomel, and opium. While, however, you rely on these remedies as the principal, there are others not to be forgotten, which may be looked on as a sort of auxiliaries in the contest. It may be proper to purge the patient five or six times, during the first day especially. It may, too, be proper enough to give the digitalis. In one pressing case, within forty-eight hours from the chill, I brought a patient so completely under the operation of the digitalis that I was alarmed for the consequences; yet, notwithstanding this, the fever ran its course, and the patient sunk in the ordinary manner. Leeches to the abdomen may be proper, and more especially when you dare not futher bleed from the arm. Beware of applying too large a number of leeches if you have bled twice from the arm (this I have told

you already) ; but if you bleed but little from the arm, no dangerous symptoms appearing, then you may apply leeches with more freedom. The flow from the leech-bites may be supported by sponging, or by three large successive poultices, applied each of them for two hours. There is one objection to a blister, which is, that it creates a difficulty in deciding that most important question, I mean, whether abdominal tenderness exist ; but after the second or third bleeding, this objection may be set aside. The milder varieties of the disease are best adapted for blisters, and those severer cases in which the abdominal tenderness is become, in great measure, local, and where, perhaps, the pulse is not above 110 or 115. An excellent rubefacient is the hot oil of turpentine, care being taken that you do not fire the house when you are heating the oil. By means of tow, the oil may be applied to the abdominal surface, and it may be kept there till the skin become red.

To conclude : I cannot dismiss the consideration of this method of treating the puerperal fever, without candidly declaring that, under the best management, and even under favourable circumstances, this treatment will sometimes, nay, perhaps not infrequently, fail altogether, though, with all its defects about it, it must, I presume, be considered, in the present state of knowledge, as one of the best methods of combating the disease of which we are at present in possession.

Let me add, moreover, another remark ; it frequently happens, where depletion has been employed, especially the large bleedings, that friends persuade themselves that the patient is sinking from the venesection, when, in reality, she collapses from the effects of the disease. I once saw a robust Irishwoman, who, in the commencement of her attack, had been bled to eight or ten ounces only, dying, a few hours afterwards, under the collapse of the fever, with symptoms very like those to which a fatal flooding might give rise. Making due allowance, however, for these deceptions, there can, I think, be no doubt, that women do occasionally sink, perhaps not very rarely, from excess in the best-intentioned bleedings ; but, really, the collapse of the disease, and the collapse from the depletion, may be so similar, that in any given case the wisest may have their doubts. I fear there is a disposition abroad to abstract blood from the arm too largely. In over-bleedings, however, I trust that transfusion may now prove a remedy.

LECTURE XXXVII.

PUERPERAL FEVER.

In the more formidable forms of the puerperal fever, it was, some years ago, proposed, by the late Dr. Clarke, that we should attempt the cure by tonics ; and, under his direction, as I have been in-

formed, bark has been very largely administered, together with other tonics less powerful. The method of treating this disease, however, by tonic remedies, is, I fear, not to be relied upon; nor have I been able to learn that, even in the hands of Clarke himself, a practitioner of acknowledged talent, the use of cinchona in puerperal fever was attended with any very encouraging success.

By Dr. Denman, and others, we were advised, many years ago, to have recourse to emetics in puerperal fever, more especially the tartarised antimony; and M. Doulcet, who had formerly under his direction the obstetric department of the *Hôtel-Dieu*, thinking he observed, when the puerperal fever was raging in the hospital, that where patients spontaneously vomited (as they frequently do in the beginning of the disease), the disease became ameliorated; he was led by this circumstance to make use of emetics; and the emetics, consisting of ipecacuanha, were distributed among the nurses, with directions, that as soon as puerperal symptoms began to manifest themselves, the emetic should be immediately administered, without waiting for the visit of the physician. The report of the French practitioner is highly favourable; those, he says, who took the emetic soon recovered; and those died to whom the emetic was not given promptly. On a report of this kind, we cannot rely with any confidence; you will perceive that the report itself is but vaguely given, and it is to be recollected that the nurses were to be judges whether the disease was puerperal or not; whence it is highly probable that the emetic, in many cases, got the credit of subduing this formidable affection, when, in reality, puerperal fever did not exist. All allowances made, however, I cannot help thinking, that, assuming Doulcet to be veracious, the report deserves attention. With respect to Denman, I have to observe that he became, in his old age, a proselyte to depletion, so that it is evident enough that he had found emetics fail. On the whole, then, I conceive that these remedies deserve but little reliance in this disease; but should you chance to enter the chamber when the patient is just recovered from her chill, you may give an emetic with propriety, because, if it fail to subdue the complaint, it will, at least, do no harm; and, further, in those cases where you do not think it proper to have recourse to the lancet, it may be worth your while to consider whether the tartar emetic, or ipecacuanha, may not be given with advantage.

In croup, we know that calomel is sometimes found to be a very efficient remedy. A very esteemed acquaintance of mine, a man of large observation and close induction, Dr. Farre, I mean, tells me, that in *iritis*, if the system can be brought under the influence of calomel and opium, within a given time, the cessation of the inflammation is, in a manner, certain; and hence it has been supposed, that in the puerperal fever, if we could only promptly bring the system under the influence of mercury, whether by inunctions or internal administrations, much consequent benefit might be expected. Not, of course, feeling myself justifiable in making

experiments on my patients, I have not, as yet, had an opportunity of giving mercury a fair trial. In one case only, and this of the middle kind, where the patient was bled with little benefit, and where I saw no other hope of saving life, I administered mercury; but although it brought the system completely under its influence, the disease ran its course in the usual manner, and the patient died, as if no calomel had been given. To this woman I was called, about twenty-two hours after the chill, her pulse being 120 or 130, and the other symptoms mild in proportion. More blood than I directed, viz., forty ounces, were taken away; a buffy coat was formed, a degree of faintness was produced, and, for a time, the pulse was lowered: thirty-five hours after the rigour, as the disease was proceeding, and there seemed to be no chance of curing by depletion, I resolved to make use of the calomel; ten grains were taken every six hours, as in the case of the croup; in forty hours, thirty-eight grains had been taken, and the system was fairly under its influence, the bowels acting twice or three times only, so that the greater part of the calomel was retained. Notwithstanding all this, however, and though the case was favourable, being one of the milder kind, and though the calomel was given till eighty grains had been administered, the fever proceeded, and the patient died in the usual manner. We must not draw general conclusions from one solitary case, but the result of the trial was very discouraging, and I have never had occasion to use this practice again.

By the practitioners of Dublin, and more especially by Dr. Brenan, we have been strongly recommended, in cases of puerperal fever, to make trial of the oil of turpentine; and it has been asserted, that if half an ounce, or an ounce, of the oil be given twice a day, in the worst forms of puerperal fever, in their worst condition, the symptoms will be found to give way under it. The oil of turpentine I have not hitherto tried on the large scale, having a want of confidence in those reports which I could not overcome, and not feeling myself justified in acting experimentally. In some few cases, however, where I have had no other hope, the oil of turpentine has been tried by me, and the result has been to convince me, that the oil of turpentine does not do any marked mischief — that it does not clearly aggravate the disease: not to add that a sort of persuasion has been left in my mind, that now and then, perhaps, it may relieve. I was called once to a patient seized with puerperal fever of the milder form, with a pulse about 120 in the minute; the pain not widely diffused over the abdomen, the other symptoms proportionally mild. The woman had been ill about ten hours, when eight ounces of blood had been taken from the arm, and with little benefit. Under all the circumstances of the case, I thinking there was little hope of curing the disease by means of the lancet, (for I had not seen her till twenty-one hours after the chill,) an ounce of the oil of turpentine was

given immediately, a second in twenty-seven hours from the rigour, a third in the course of the night, and a fourth next morning, fifty hours from the first attack; no less than four ounces of the oil of turpentine being taken in seventeen hours; three of the doses I am sure were swallowed, because a young gentleman, who attended himself, administered them, and they were not rejected from the stomach. The first dose was followed by some remission of pains, but whether from the oil of turpentine, or from three or four operations of the bowels, did not appear. The other three doses did not produce much effect; the pulse, on the following day, remained much the same, and the patient ultimately died. The failure of cure in this case was very striking, because the attack was not in its character very formidable, and certainly by no means unfavourable to the success of the oil; the woman, too, was Hibernian. I was called in this neighbourhood to a woman labouring under puerperal fever in the most malignant form; she had been ill for two or three days; the pain was diffused over the greater part of the abdomen, and the pulse was clearly ascertained to be 170 in the minute. In this case there was clearly no hope of saving the woman by the use of the lancet; two or three ounces of the oil of turpentine were administered in the course of the next twelve hours. Some little remission of the tenderness and pain was, I think, observed after the first dose; but no marked or permanent benefit was produced by it, and the woman died; the failure being the less discouraging, because, I believe, the disease had gone so far, and the inflammation was spread so widely over the peritoneum, that, perhaps, no human aid could avail. In the autumn of 1824, when the puerperal fever was not so prevalent as it had previously been, I was requested by Mr. Edwards, of Queen Street, to see a woman who had considerable inflammatory tenderness, and pain about the abdomen; her pulse was about 130, and the blood that had been taken away was somewhat buffed. She had laboured under the disease for two days and a half before I saw her; and it was not till the fourth day after delivery that disease began, this being a highly favourable circumstance; for when the attack commences, consider the disease to be much more favourable for the cure when a patient is attacked on the fourth day, than on the second or third. This woman had all the usual marks of puerperal fever, and about sixty-four ounces of blood had been taken away before I saw her. In this case, considering that little benefit was to be derived from the further use of the lancet, I thought it proper to make trial of the oil of turpentine; and in the course of twenty-four hours an ounce and a half of the oil were given — a less copious quantity than in the former cases. Within the next twenty-four hours she took another ounce, and under this treatment symptoms were gradually subdued, whether from the use of the oil of turpentine or not, remains uncertain; but the recovery was unlooked for. From the few facts, therefore, that have fallen under my own

observation, I am inclined to think that, in the puerperal fever, the oil of turpentine does not, in any obvious manner, aggravate the symptoms: and I am not prepared to deny that it may, in some cases, be useful in curing the disease; though it is my decided opinion that, in London, this remedy is by no means so powerful in subduing the fever as the Dublin practitioners have supposed. Why the oil should be more successful in curing this fever on one side of the water than on the other, I do not pretend to explain. Should you, hereafter, deem it right to use the turpentine in cases of puerperal fever, it may be well not only to administer it internally, but to apply it also to the abdominal surface, in the way of rubefacient.

When you are called from speculation to action, you will, I conceive, find it of no small advantage to divide this disease into its different varieties, and the sporadic and the epidemic varieties, mild and malignant, are the three kinds, which, in my own practice, I am accustomed to discriminate. When the puerperal fever is diffused all over the district, we sometimes find that almost all the cases are of a malignant kind, not to be subdued by the most active remedies, and speedily running their course, to the destruction of the patient. In this variety of the disease, we sometimes observe a certain hurry of the nervous system, which leads the patient to speak with a rapid utterance, and in a sharpened, and somewhat reedy tone of voice. If you ask her how she is, she replies, perhaps, in a hurried manner — "I am very well — there is nothing the matter with me" — a mode of speech which in me always excites the most gloomy apprehensions. Under these malignant attacks, moreover, the pulse rises to a high degree of frequency, mounting sometimes to 150, 160, or even 170, in the minute; over the whole abdomen tenderness diffuses itself, — above, below the navel, to the right, to the left side; and coughing may occur, and pains may be felt in the loins, as if the peritoneum, covering the lumbar surface and that of the diaphragm, were affected. A very rapid exhaustion ensues; when the sun rises the patient is well, before it sets a second time, she is dead; in extreme cases, she may sink within twenty-four hours after the chill. Add to these characteristics of the disease, a prevalence of the malignant type in other cases occurring at the time; and thus, by the prevalence of the malignant variety of the disease at the time — by the speedy exhaustion of the patient — by the extensive diffusion of the pain and tenderness over the abdomen — by the great frequency of the pulse, rising to 150, 160, and sometimes 170, in the minute; and, then, by a less constant, but very important symptom, the hurry of the nervous system, I mean, this malignant variety of the disease may be readily recognised.

FIRST VARIETY OF PUERPERAL FEVER.

In the worst cases of the malignant epidemic, do what you will, the patient, I fear, must sink; and therefore, in those cases, it is

perhaps, better to refrain from the use of free venesection, as, by having recourse to it, you may bring the practice into disgrace; for the patient perishing under a collapse similar to that arising from inanition, it may seem, to the inexperienced, that she is sunk from depletion. In this state of the disease, therefore, other remedies may, in preference, be recommended. Calomel and opium, for example; emetics, turpentine, and small bleedings. But when the disease, though malignant, is in its milder form, it may be proper to attempt a cure by the bold use of the lancet, aided by calomel and opium, as before explained; and if you will, by turpentine. Immediately after the chill, an emetic may be administered. Whatever is done, must be done with promptitude; after the chill, the sooner you commence your operations the better, provided there be, in the system, sufficient reaction to sustain them. Would this reaction be accelerated by wrapping the patient in blankets, wrung out of water warmed to the temperature of 98° of Fahrenheit's thermometer?

SECOND VARIETY.

When puerperal fever is prevalent, the epidemic is sometimes milder; the pulse, perhaps, not rising above 120 or 130 in the minute. By the confinement of the pain and tenderness to a surface of the abdomen, not broader than the two hands — by an exhaustion that comes on less rapidly, so that the woman may continue ill for three or four days, then recovering or sinking, collapsed, and by the mild character of the epidemic at the time the case occurs, this more manageable variety of the disease may be recognised.

It is in the milder and inflammatory form of the disease, of course, that we have the fairest chance of subduing it, and many cases of this type are completely cured by means of the method of depletion we have before mentioned.

"I cure all my cases of puerperal fever!" When you hear persons talking in this manner, you may, I think, be well assured that one of two things is true — either that the practitioner has seen the milder form of the disease only, or else (which is not improbable) that in reality he has never seen the puerperal fever at all, although he believes himself to have so successfully treated it. When hearing these boasts of my friends, I have sometimes replied, "Wait the end." I shall never forget the altered countenance of one of my acquaintances, who came to tell me, in a true hypochondriacal accent, that my prognostic had been verified; that he had now to contend with the puerperal fever in good earnest, and that he had been unfortunate enough to lose two or three patients in succession. Venesection, calomel, opium, perhaps turpentine, and, in the beginning of the disease, an emetic, these are the remedies which I should recommend in these cases. The rules of management have been already laid down. As before, begin your operations as soon after the chill as may be.

THIRD VARIETY.

In practice we sometimes meet with a third variety of the puerperal fever, I mean the sporadic. Perhaps the disease has not prevailed in the district for years; perhaps a solitary case has not been observed for a length of time, but at last you meet with a case in which the patient has chills, heats, headaches, abdominal tenderness, pulses of 130 or more in the minute, and all these symptoms commencing on the second, third, or fourth day, at a time when the fever shows no disposition to spread among puerperal women in the district. This solitary case constitutes the third or sporadic variety of the disease. If sporadic puerperal fever be very severe, it should be treated exactly in the same way as you would treat the milder form of the endemic, by venesection, calomel, opium, emetics — *et id genus omne;* but if, which is more probable, the attack be milder, you may then, perhaps, subdue it, by applying thirty or forty leeches to the abdomen, by laying a large blister over the abdominal surface, by purging, digitalis, diaphoretics, small abstractions of blood from the arm, and, in short, by all those ordinary remedies which are found to succeed in case of inflammation. Sporadic cases being rare, I would give an opinion with caution, but I think you will seldom find the pulse above 120, 125, 130, or 135 in the minute.

CAUSES OF THIS DISEASE.

By Denman a case is related, in which symptoms very similar to those of puerperal fever supervened in a woman who had never been impregnated; this woman laboured under obstruction of the vagina, in consequence of which the uterus enlarged greatly, from catamenial accumulation; and when the hymen was divided, the contents of the womb were expelled with efforts like the parturient, and, no long time afterwards, abdominal inflammation supervened; — a case very similar occurred at one of our hospitals. In this case it was necessary to take away a considerable quantity of blood from the arm before the symptoms could be subdued; and thus it now and then happens, independently of pregnancy, where the womb, being dilated from internal accumulation, becomes suddenly emptied and contracted, that abdominal inflammation, like puerperal fever, occurs. With these few exceptions, however, if, indeed, they are exceptions, it holds true as a general principle, that puerperal fever never attacks women but where they are prepared for it, either by the birth of the ovum, or perhaps now and then by a near approximation to its birth; and hence we may enumerate generally among the great causes of this disease, such a condition of the abdomen as is produced by delivery, or its near approach. I add here the alternative, or the near approach of delivery, for there is reason to believe, if our records may

be relied on, that the fever sometimes commences before the child is expelled.

This disease, again, is found to rage much more fiercely sometimes than at others; so that, after remaining quiet for fifteen or twenty years together, it suddenly becomes epidemic, and fills our families with mourning, and our printing presses with dissertations. Among the causes of puerperal fever, therefore, set down a sort of epidemic constitution among the women, a most unfortunate coincident with the first establishment of the young accoucheur in practice. The disease getting into his connexion, may, in its malignancy, baffle all his efforts, destroy his patients, and blight his reputation in the bud. Indeed, should you be thinking of commencing at a time when puerperal fever prevails, I conceive it may be well worth considering, whether procrastination be not desirable; for in the end, perhaps, you may find, that to wait for one or two years, is wiser than to begin rashly your obstetric career with all these dangers about you.

It is much disputed by some whether this disease be infectious; and this doubt furnishes an agreeable topic of conversation over a warm cup of tea. But, however this point may be decided, or unsettled, remember that the facts affirmative are so strong, that on this affirmative it becomes our duty to act. Nor ought your faith in the possible infection of this disease to be hastily shaken by contrary opinions, even when advanced by the most experienced. There are some men who entertain a lurking belief of the infection of this fever, notwithstanding all their intrepid declarations to the contrary; not that in these declarations it is their intention to deceive, but there is a curious phenomenon of the human mind, well known to those who have studied it, and which consists in fancying that we believe that to which we give no credence, and the contrary; a state of mind which is soon discovered to ourselves and others, by placing ourselves in a position which calls for the operation of the faith or belief, when infidelity becomes manifest. Conversing with an obstetric friend, who contended that the puerperal fever was not infectious, I heard him (for he was my elder) with respectful attention, till at length, after he had delivered his sentiments somewhat at large, "Notwithstanding all this, (said I,) my dear sir, I cannot help thinking that the fever may be infectious, and, pardon the freedom, but I fancy you think so too." "I, (said he, in an accent of surprise,) I think so! why I have just been telling you to the contrary!" "Well, (said I,) will you allow me to bring your belief to the test?" He nodded assent. It so happened that this gentleman had a favourite niece, recently confined, the only immediate representative of his very respectable family. "Come, then, (I proceeded,) you tell me your niece has just been confined, and I offer my congratulations; but, permit me to ask, if you had been to see one or two patients labouring under this terrible disease, would you like to take her by the hand and to sit down upon the bed?" He started gently,

and hesitated; then, in a subdued tone of voice, "Why, really, (said he,) I should not like to do that." Thus, it seems, even in the midst of denials, there may be on the mind a suspicion of infection; and on this suspicion, of course, it becomes our duty to act.

I will not weary you with anecdotes; those who have never made the experiment can have but a faint conception how difficult it is to obtain the exact truth respecting any occurrence in which feelings and interests are concerned. Omitting particulars, then, I content myself with remarking, generally, that from more than one district I have received accounts of the prevalence of puerperal fever in the practice of some individuals, while its occurrence in that of others, in the same neighbourhood, was not observed. Some, as I have been told, have lost ten, twelve, or a greater number of patients in scarcely broken succession; like their evil genius, the puerperal fever has seemed to stalk behind them wherever they went. Some have deemed it prudent to retire for a time from practice. In fine, that this fever may occur spontaneously I admit — that its infectious nature may be plausibly disputed I do not deny — but I add, considerately, that in my own family, I had rather that those I esteemed the most should be delivered, unaided, in a stable — by the manger side — than that they should receive the best help in the fairest apartment, but exposed to the vapours of this pitiless disease. Gossiping friends, wet nurses, monthly nurses, the practitioner himself, these are the channels by which, as I suspect, the infection is principally conveyed.

I know of no certain preventive of puerperal fever. — Is bracing the abdomen of importance? Moderate purging after delivery can do no injury. As flooding, during delivery, seems to dispose to the fever, I think it very doubtful whether venesection possesses any preventive power. To guard solicitously against infection is, of course, of the first importance.

On examining the body after the more malignant attacks of the puerperal fever, as when the patient, for example, is dead within a day or two after the chill, on opening the abdomen scarcely a trace of inflammation has been observed; a little bloody serum, a few dubious adhesions, a difference of opinion respecting the state of the capillaries, and that is all; but in the milder and more inflammatory varieties of the disease, where the patient lives for four or five days, and then dies, the changes become more conspicuous; a bloody serum is observed, as in the former case, and coagulable lymph is effused into the abdomen, perhaps somewhat copiously, though not under my own observation, in those large quantities remarked by the late Dr. Clarke; the different folds of the intestines are adhering mutually, as well as to the omentum and the abdominal coverings; and in one instance I had occasion to see a suppuration under the ovary in the cellular web, which is somewhat abundant there, externally to the peritoneum.

With regard to the nature of the disease, to me it appears to turn upon a general disposition in women to an inflammatory action, which may sometimes attack other parts, as the head, for example, but which, in the great majority of cases, is fixing on the peritoneum. That peritonitis usually occurs in this disease, is, I think, now so generally admitted, that it is not necessary to argue upon it; though the pains and tenderness of the abdomen, the buff on the blood, the frequency of the pulse, and the appearances on dissection, may all be produced as so many proofs of the truth of his assertion. Why it is that this inflammation of the peritoneum should sink the strength so rapidly, especially where it does not appear to have been extensively diffused, I am totally unable to explain; and this effect appears to be the more surprising, because in function the peritoneum, though of wide extent, does not appear to be an organ of much importance to the system. In the operation of this inflammation there seems to be something analogous to that of extensive burns; whether any new principles of treatment may be deduced from this consideration, I am not prepared to decide.

The cause of the difference between the malignant, the milder, and the sporadic varieties of puerperal fever, I do not profess to explain; but a plausible opinion is the following; — in the malignant form of the disease, I suspect, that the epidemic disposition to peritonitis is strong, and that the diffusion of the peritonitis is great, whence the difficulty of the cure, and the rapidity of the collapse. In the milder form of the disease, I conceive that the peritonitic propensities are weaker, and that the inflammation is of small extent, whence the strength gives way more slowly, and the peritonitis is more readily subdued. In the sporadic cases, the epidemic constitution is wanting altogether, and the surface of tenderness may, I believe, generally be covered with one or two hands, and this may, in a general way, explain to us why this attack is of small danger. I may observe, generally, that it is not so much the intensity as the extent of the inflammation, which constitutes the risk; and we may reasonably expect the milder symptoms, when the peritonitis is confined to a few square inches, and the severer when it extends over two or three square feet.

When you are nervously apprehensive, in consequence of ill success with this disease, you are liable, without good reason, to believe that your patient is the subject of puerperal fever, and hence the need of a just diagnosis. If the bladder be loaded after delivery, it may produce symptoms exceedingly similar to puerperal fever, and hence the importance of introducing the catheter, in all dubious cases, for this diagnostic alone may be relied on; care, too, must be taken to put the catheter into the bladder, and pressure ought to be made above the symphysis pubis, to aid the flow, for some paralysis of the organ is not impossible.

Accumulation and irritation in the bowels may give rise to symptoms like puerperal fever, the pulse rising to 110, 120, or more, and the abdomen becoming tender. A prompt purgation is the best diagnostic; and, in *very* dubious cases, you may bleed once, after which you may, I conceive, generally make your diagnosis, before a second bleeding can be necessary, as there may be time previous for the action of cathartics. Senna and salts, aided by injections, are of prompt operation.

If women have merely spasmodic pains of the abdomen, whether of the gall-ducts, intestines, ureters, or womb, the last being most, these are easily discriminated by the absence of the fever, during the epidemic; but it sometimes happens when the after-pains are severer, that a small fever attends the pulse, rising to 110 in the minute; and the hardened uterus, when compressed, becoming acutely painful. This case appears to consist in the puerperal fever in a subdued form; and it may, perhaps, be most safely treated in the same manner as the sporadic variety of the disease before mentioned; so long as the pulse remains below 120, little danger need be apprehended.

Enteritis may, I suppose, be distinguished from puerperal fever, because it produces constipation, and an inflamed uterus may be easily recognised, because, by a competent examiner, it may be subjected to examination, almost with the same nicety as an inflamed finger. If, however, the puerperal fever is to be treated like other inflammatory diseases, this diagnosis becomes less important.

I cannot dismiss the consideration of the puerperal fever without mentioning with acknowledgment the names of Gordon, Hey, Armstrong, and Marshall Hall; and it is my sincere hope that Brenan may be found deserving of the applauses of posterity.

LECTURE XXXVIII.

PHLEGMASIA DOLENS.

Phlegmasia Dolens, an intractable and distressing disease, is, on the whole, not of very frequent occurrence; and though it has been my lot to see several specimens of it, yet having met with it in my own practice less frequently than the puerperal fever, I have enjoyed but few opportunities of making personal observations on its treatment, and therefore I shall enlarge on it the less. Meeting with this disease in the course of your future practice, you will find it divides itself into two varieties, the acute and the chronic; and treating of these in order, we will commence with some observations upon the disease in its acuter form.

In some rarer instances, the phlegmasia dolens makes its appearance even months after the delivery; and Levret, the French surgeon, who, however, had, I believe, a theory to serve by the assertion, states, that he has known an attack to occur on weaning the child, perhaps a year or more after delivery. In general, however, the commencement of the disease is of earlier date, occurring, according to Burns, in the second, third, or fourth week, and usually not far from the second week. It would be too much, perhaps, to assert, that the disease never commences without abdominal symptoms; in general, however, those symptoms are observable more or less conspicuously. The patient feels a degree of pain, tenderness, stiffness, and induration in front of the pelvis, more on one side than the other, and perhaps more frequently on the left side than the right, because, for a reason not understood, the left side is more frequently attacked with phlegmasia dolens. After these symptoms have contined for a few hours, longer or shorter, the woman may be seized with a severe pain in the middle of the lower limb, the region of the knee, for example, and this accompanied, sooner or later, with a swelling, firmness, whiteness, heat, and tenderness on pressure, or, when the limb is moved, all the symptoms, varying in their degree in different cases. In other instances, instead of commencing in the middle of the limb, an accident, according to my own observation, by no means uncommon, the attack opens with a swelling of the upper part of the member, the intumescence spreading downwards along the thigh — the knee, the calf, the foot, successively, till the whole limb becomes twice as large as its fellow, being, at the same time, glossy, elastic, tense, painful, hot, tender, and of white complexion, and this enlargement of the limb, with the changes which I have enumerated, may all of them be accomplished within the four-and-twenty or eight-and-forty hours sooner or later, with different rapidities in different cases.

Under the slighter effects of the disease, the mobility of the limb, independently of that impediment to its movement which results from pain and swelling, is not always much impaired; but in the severer attacks, together with that stiffness of the limb which results from the swelling, there is a want of moving power, in nature allied to paralytic debility, so that, if you ask the patient to move the leg, she performs the action with difficulty; and if you ask her further, whether the difficulty arise entirely from the pain, she tells you No, but that she feels as if she were incapable of moving it. Together with these symptoms about the limbs and pelvis, certain constitutional symptoms also, not to be overlooked, arise; you have shiverings and heat, and paleness, and cutaneous warmth, and the tongue is moist and white, and the pulse 180 or more in the minute; and the *lochia* may be suspended, or they may continue to flow in the natural way, a fact, in a view to the pathology of the disease, well worth your notice; and sometimes the discharge is very offensive, the urine is turbid,

and the perspiration may be copious, but not critical, and the patient is very weak, and there is a great deal of nocturnal restlessness.

After the disease has continued for a longer or shorter time, it usually terminates by a gradual extinction of the inflammation; and, in the more successful cases, we find that all the symptoms entirely disappear, the limb being reduced, or nearly, to its original dimensions, so that the patient can walk about with facility; while in other cases, when the inflammation is subsided, the limb remains hard, firm, and of great bulk, the disease degenerating into the chronic form, in which condition it may remain for months, perhaps for years. When the inflammation yields, topical indurations are sometimes observed in different parts of the limb, not of glandular nature, for they do not generally hold the place of the conglobate structures of the lymphatic system.

Phlegmasia dolens varies much in its intensity, Mortification is certainly uncommon — abdominal suppurations are now and then observed. On the limb a succession of abscesses may form, as Dr. Haighton had observed. The arms may, I believe, swell as well as the legs, and occasionally the disease is itinerant, travelling metastatically from limb to limb. Puncture, I am told, gives passage to a little gelatinous material, perhaps a few drops; of course it does not, as in anasarca, reduce the bulk of the limb. The disease may last for weeks, or days only, for its duration is very various; a fortnight approaches the average term.

On the treatment of phlegmasia I shall enlarge but little, as all that is of value may, I conceive, be comprised in few words. In its first commencement, leeches may be laid above the fold of the thigh, in the region of those pelvic and abdominal symptoms before mentioned. *Blisters* and *sinapisms* may be afterwards applied to the same parts, and the bowels may be cleared. If a woman were robust, I might feel disposed to bleed to the amount of sixteen ounces, if I saw the disease in its commencement; but in the present state of our knowledge with respect to phlegmasia, it is, I believe, in general unwise to have recourse to much venesection, as we only weaken the system without subduing the disease, which more frequently seizes the debilitated than the vigorous, and can rarely, if ever, be arrested at once.

When the disease is fully developed in the leg, the principal palliatives deserving an essay are *leeches* on the limb, *fomentations*, *evaporating lotions*, *poultices*, such *laxatives* as will keep the bowels going, and when the pains and restlessness are distressing, anodynes. If the inflammatory symptoms are very lively and vigorous, then six or eight leeches may be applied once a week to the inflamed limb. A large number of leeches, however, I should not apply, for the reason already assigned, for I should not expect to extinguish the disease by using them; and it is to be remembered, that the weakly irritable constitutions most obnoxious to phlegmasia, do not, in general, bear bleeding w ll. If the crural attack, the attack in the limb, I mean, be less violent, and the

patient, as frequently, be weakly and irritable, the leeches may be laid aside, and the leg may be wrapped up in light poultices of linseed meal or bread, to be frequently changed in the course of the twenty-four hours.

We have little encouragement to puncture in these cases, notwithstanding the œdematous appearances. In some cases, perhaps, a little fluid might issue; but we have reason to believe, that what accumulates in the cellular texture is, in its consistency, gelatinous. On lowering the foot, should the intumescence increase there, the collection under the skin may be suspected to be of watery consistency; this test may, perhaps, in some few cases, be of service.

In treating the phlegmasia dolens, too, you must not neglect the state of the constitution, which, indeed, sometimes requires close attention. In the commencement of the attack, when the symptoms are most inflammatory, then *antiphlogistic* means, *laxatives*, *diaphoretics*, and perhaps the *digitalis*, may be employed; laxatives being used as sparingly as may be, as movement, when the bowels are open, often occasions a great deal of distress.

When the patient has been labouring under the disease for some few days, and more especially if she be weakly and irritable, a treatment somewhat different from the preceding becomes requisite, and *nourishment*, and gentle aperients, and *opiates* and *anodynes* may be given; and if the symptoms are subsiding, *bark*, *sulphuric acid*, and generally mild tonic remedies may be recommended.

Phlegmasia dolens is not, in general, a dangerous disease, yet patients now and then perish under it. More especially, if women are much reduced in flesh and strength, and energy of nerve, they are liable to sudden dissolution, when, perhaps, nothing of the kind was apprehended; they attempt, perhaps, to turn in bed, or to rise into the sedentary posture; syncope supervenes, and they die. Denman has animadverted on this kind of danger, and instances of it I have seen in my own practice. Beware, therefore, of reducing the strength too much. In a proper manner mention this risk to the friends.

CHRONIC PHLEGMASIA DOLENS.

I have, now and then, met with cases, in which the patient has been labouring under the chronic form of the disease, either of original occurrences, or, (which more frequently happens,) as a consequence of the previous acuter attack. Under this variety of the disease, for weeks or months together, the limb remains twice as large as its fellow, firm and hard, stiff, cold, and free from inflammation; though now and then perhaps, incidentally, attacks of inflammation may occur. In cases of this kind, of course, it is our grand object to excite such an action of the *absorbents* as may reduce the limb to its original dimensions. For

this purpose, gastric medicines are of little advantage; but something may be done topically, and not without effect; *friction* with the hand, friction with the *mercurial* ointment (the operator should be protected with one or two pair of oiled silk gloves), and a well-adjusted roller may be of considerable service. Burns says that advantage may be derived from the liberal use of *cream of tartar* in solution taken into the stomach. Now, of all these remedies, the one I principally recommend to you, is compression by the roller. Young advised compression to dissipate the scirrhous tumours of the breast. Dr. Hall has strongly recommended the roller in these cases of phlegmasia dolens; and, for myself, in some two or three cases, I have employed it, apparently with very obvious advantage. The great object of our bandaging, is to produce such firm and steady pressure as may excite the action of the absorbents, without dangerously interrupting the circulation. For this purpose, a roller should be procured of many yards in length; and this, as recommended by Hall, may be spread with some mild adhesive plaster, so as to give it a firmer seat upon the limb. Beginning at the foot, you may then bandage upwards to the knee, afterwards applying a second roller on the thigh, so as to leave the knee unbound, in order that the patient may have a less embarrassed use of the limbs. If the pressure of a single roller be inadequate, a second may be laid over the first; and thus, by multiplying bandages, we may augment the compression in any degree which may be deemed necessary. If, as advised, the knee-joint be left unbandaged, the patient may often be able to attend to her domestic concerns. By bandaging a few weeks, I have seen a case more benefited, than by a previous course of medicines continued for several months.

Dissections of this disease, in its acuter form especially, are much wanted. Zinn, one of Haller's favourite pupils, found an enlargement of the inguinal glands near the large vessels. Dr. Davis has detected inflammation in the large bloodvessels of the limb. Gaspar, as cited by Burns, discovered much inflammation about the neck of the womb and the vagina, but the vessels of the limb were without obvious disease. The nature of this malady is still dubious. Levret, Puzos, White, Frye, Hull, and Davis, have all advanced plausible opinions. Burns has written excellently well on the phlegmasia dolens, and to him I am indebted for many observations.

AFTER-PAINS.

After delivery of the first child, women rarely suffer much inconvenience from after-pains; but when they have borne two or more children, those pains are apt to harass; for a day or two they have pains not unlike the pains of delivery, produced also by the same cause, namely, contraction of the muscular fibres of the womb; and these pains are aggravated by concretions in the

uterine cavity, by retentions of the placenta, by the application of the infant to the breast, and by the administration of warm drinks. In ordinary after-pains, you will find *opium* an effectual and valuable remedy; and it is my own custom, as well as that, I believe, of most accoucheurs, to prescribe from twenty-five to thirty drops of the tincture of opium, with an ounce of camphor mixture, and a little simple syrup. Of these draughts, I order two — one to be taken an hour after I quit the house, should pain urge; the other to be administered an hour after the former, should a first dose not prove sufficiently anodyne.

When the puerperal fever is prevalent, and, perhaps, at other times, you will meet with a sort of sub-inflammatory after-pain, under which the suffering is, on the whole, very severe. In cases of this kind, when you revisit the patient, the nurse perhaps alarms you, by saying that her mistress has suffered in the abdomen greatly, and you go to the bed-side expecting the puerperal fever, but you have the happiness to find a pulse not exceeding 100 or 110 in the minute. Examining the case more minutely, you discover that the uterus is hard under the touch, and that there is, too, a sort of tenderness which may be observed when it is compressed; nevertheless you cannot learn that there have been any cold chills, nor do you find cause for apprehension, in the frequency of the beat of the heart. These cases appear to constitute a subdued form of the puerperal fever, prone to break out into the more flagrant symptoms of inflammation; and they ought, therefore, during the first few days, to be watched with solicitous care, and this more especially if the fever be epidemic. From ten to twenty leeches may be applied above the symphysis pubis, three poultices each to be left on the part for two hours, being afterward laid over the leech-bites in succession, so as to keep the orifices bleeding. Fomentation of the abdomen for hours together may be useful in these cases, together with action of the bowels four times daily, and in the more pressing cases, venesection. After the use of antiphlogistics, opium may be employed as in the former case; and it is but rarely that it can be necessary to begin with anodynes, though I see no objection to their employment, simultaneously with other remedies.

Where there are no inflammatory symptoms, a third variety of the after-pains may occur, under which, for two or three days together, the patient suffers so severely, that, perhaps, for ever after she looks forward to the after-pains with still greater apprehension than to the pains of labour itself. In some cases, this highly severe after-pain is occasioned by something in the uterus; a portion of the placenta, or a concretion of blood, for example; severe pain being followed, perhaps, by the expulsion of a solid mass, as large as the closed hand. In other cases, however, these severe pains occur without any distension to account for them.

If the patient want fortitude to wait till the disease cease spontaneously, you may apply leeches, and give opium in operative

quantities, the bowels having been previously cleared with salts and senna. The doses of opium must vary in different cases, but I suppose the first may range, on an average, between sixty and eighty drops; smaller quantities, of twenty or thirty drops, being afterwards administered, according to the effect produced. Do not heedlessly have recourse to these very active practices; in most cases it is, perhaps, better that the disease should subside of itself.

In practice, it is of vast importance to distinguish mere after-pains from those pains which are of inflammatory nature, whether they arise from inflammation of the ovary, the uterus, or of any other part; nor is the diagnosis difficult. If inflammation attend, there is chill, dry heat, tenderness, and above all, an ominous pulse of 120, 130, or 140, in the minute; but in pure after-pain, the pulse is below 100, and the chills and heats are not observed.

From uterine pains, also, we must further distinguish the pains which arise from spasms of other parts — of the bladder, the bowels, for example, not to mention those of the ureters and gall-ducts, of rare occurrence.

Over-distension of the bladder may give rise to violent spasms, always accompanied with much frequency of the pulse; a large *hard* tumour in the uterine region, and the introduction of a catheter into the bladder, are the best diagnostics. Spasm of the bowels is known by flatulency, tormina, and pains in kind unlike the after-pains, and which, moreover, are not accompanied with expulsion of solid blood, or other substances, from the cavity of the uterus. In fine, in cases of after-pain, the seat of the pain, which is the same as that of incipient delivery, namely, the back, hip, and thighs — the kind of pain similar to the cutting, grinding, and sawing pain of parturition — the eruption of the lochia — the feeling as if something were expelled from the uterus, or the actual expulsion of a large concretion, and the increase of the pain occasioned by the application of the child to the breast, — these are some of the best *diagnostics* I know of, and, in general, they will enable us to distinguish these after-pains without difficulty.

LOCHIA.

After parturition has taken place, and the placenta has been removed, women are liable to a red discharge from the uterus, the lochia, as it is called, supposed to be of a purifying nature, but, in reality, consisting of little more than blood which oozes from the orifices laid open by the separation of the placenta. Consisting, at first, of deep red blood, this discharge afterwards acquires a greenish colour, and is denominated the *green water*, when the odour is said to be unpleasing, subsequently to which it becomes whiter and more transparent, afterwards ceasing altogether. In quantity the discharge varies exceedingly, being three times as abundant in one woman as another; both patients recovering

notwithstanding with equal facility or difficulty. Much variety, moreover, is observed in the duration of the discharge, as it may last for hours only, or days, or for two or more weeks. To its average duration I have paid little attention, but I suppose it may be of ten or twelve days.

EXCESSIVE LOCHIAL DISCHARGE.

In modern practice, much attention is not paid to the lochia, though our predecessors, fond of humoral pathology, professed to study this discharge with a great deal of attention, and certainly it ought not to be overlooked. Should the discharge from the uterus be more abundant than ordinary, the health suffering but little in consequence, quietude and patience are all that the case appears to require. Cough is not unfrequently the cause of overflow; and of palliatives, emulsion and the paregoric elixir seem to be the best. A piece of placenta retained may augment the flow of the lochia; vomiting, offensive discharge, and protracted after-pains, being the principal presumptive symptoms indicating the accident, to be ascertained with certainty by examination only, when the retained substance may be felt. In those cases, removal is the best remedy; but, unless the symptoms are very urgent, it is better to refrain from manual operations; left to its own efforts, the uterus will, perhaps, more safely clear itself.

SUPPRESSION OF THE LOCHIA.

On visiting the patient, you sometimes learn that this discharge is suppressed altogether, an accident which ought always to attract your attention. Now, if you find, on examination, that there is no increase of the frequency of the pulse, and that all other symptoms are favourable, then you need not alarm yourselves about the suppression, more especially apt to occur if a woman have lost large quantities. But suppressed lochia may arise from inflammation of the womb, an accident which may be known by cold along the spine, by the roundness, and hardness, and tenderness of the uterus, easily felt through the abdominal coverings, and above all, by the heat of the skin, and the frequency of the pulse, which rises to 120, 130, or more, in the minute. Suppression of the lochia too may result from closure of the mouth and neck of the womb by clot, the blood collecting within and giving rise to enlargement, induration, and pain about the uterus, all the symptoms giving way after a severe after-pain, under which the concreted blood is expelled.

LACERATION OF THE PERINEUM.

At the close of delivery, women are liable to lacerations of the perineum, occasioning, when extensive, much distress to the patient; and of these, therefore, we will next treat.

In different ways the perineum may be lacerated; for it may be torn to the extent of an inch only, when it is a matter of little importance; or it may be laid open from one end to the other into the extremity of the intestine, the sphincter ani being lacerated too, so that the part looses its retentive power; or the perineum is perforated, the fœtal head passing through the aperture thus formed; or, lastly, with tremendous disruption, the head of the child may be forced through the orifice of the intestine, an accident, of which I have myself known one instance. Of these various lacerations of the perineum, or the parts about it, the most frequent is that in which the perineum is torn from one extremity to the other. This laceration of the perineum may be produced variously; sometimes by instruments and the rude abstraction of the head; sometimes by rough attempts to introduce the hand of the accoucheur, and sometimes by the mere pressure of the head, the practitioner having, perhaps, neglected to guard the perineum, or the perineum being guarded with the nicest care, but the head forcibly and unexpectedly making its egress from the pelvis, perhaps during some start of agony; for, it is not always that laceration of the perineum implies either ignorance or carelessness on the part of the practitioner.

When the injury has taken place, if it be merely a slight laceration, keep the parts clean, and it will heal of itself, the patient, it may be, never suspecting what has happened. If the laceration be more extensive, reaching through the sphincter, miserable consequences ensue, the patient becoming, for a time, incapable of retaining the contents of the bowels; it is, however, a satisfaction to know, that, in the course of months, the parts harden round the orifice of the laceration; and, in consequence of this hardening, unless there be diarrhœa, or extraordinary action of the rectum, the fæces may be retained, though not without uncertainty. Moreover, where this accident occurs, sexual intercourse suffers, and the uterus is very apt to bear down beyond the external parts; extensive laceration, therefore, being looked upon as a very great misfortune, and not without reason. Where a laceration of this kind has occurred, if there should be a copious discharge of blood, an accident, however, which I never myself have seen — ligature, cold, and pressure, would prove the most effective remedies. This accomplished, it would next be desirable to clean, as much as might be, the surface of the sore, which is usually ragged, broad, and sloughy. Oil of turpentine duly diluted, tincture of myrrh, and other detergents, may be found useful for this purpose; but the question is purely surgical, and for information on these points I must refer you elsewhere.

The surface of the sore once cleared, it may be well to attempt a re-union of the parts, though, in this, we are generally and totally disappointed; partly in consequence of the difficulty in keeping the parts together, and partly in consequence of indisposition to adhesion, and a propensity to suppuration and slough. Continued contact of the sore is a principal indication in these

cases, and this may be variously attempted. That ligatures of the rectum are of doubtful use, seems to be agreed on all hands; but a ligature may be inserted into the perineum now and then, perhaps, with advantage. I have reason to believe, however, that it is not so easy to keep the surfaces of the sores together by means of the ligature as *à priori* we might have expected; the ligatures are apt to give rise to inflammation, irritation, perhaps suppurations and slough, and, in this manner, they are apt to detach themselves before cohesion is accomplished, after the parts have been brought together. The conjunction of adhesive plaster with the ligature may prove a considerable help; and sometimes the union may be accomplished by the use of the adhesive plaster only, independently of the ligatures; and if this can be accomplished, it is to be preferred.

When you are attempting re-union, the management of the bowels is a point of very nice importance, and this may turn on opposite principles; for, after clearing them thoroughly, you may torpify, so that there may be no evacuation for a week or more together; the patient, during this term, using one or two eggs only for her daily food; or pursuing an opposite method, you may keep the bowels in a lax state from the first, giving very mild aperients for the purpose, the object being to occasion as little disturbance and tenesmus of the parts as may be; the patient, when the bowels act, carefully guarding against effort. Of these two modes of management, I know not which is decidedly preferable, though I have seen one case in which a re-union of the skin forming the perineum, properly so called, was produced, constipation of the bowels being kept up for about ten days. Circumstances must, I presume, direct your choice.

To attempt re-union in these distressing cases is always proper; but much cannot be safely promised, for we seldom succeed. Even when re-union is accomplished, I suspect it is, in a manner, more apparent than real; for I doubt much whether the parts are ever brought back into the state in which they were before the occurrence of the accident. When muscular parts are torn, retractions are apt to occur very unfavourable to their becoming duly united, and such appears to be the case here.

Women will sometimes come to you with chronic rents of the perineum, a year or more after the accident, anxious to know whether anything can be done for them. Now, if they are merely troubled with *prolapsus uteri*, these may be remedied by pessary, without attempt at re-union; but if married, they may, for other reasons, be solicitous of a cure. I have seen one case in which, by removing the callous edges of the wound, and by torpifying the bowels in the way I have been describing, the parts were made to unite. Other cases I have seen, in which the attempt has been made, but not with the same success. The edges of the fissure were removed, ligatures were applied, the bowels were managed with the nicest care; the operation was twice repeated; but either

the ligatures came away by sloughing, or there was so much irritation, suppuration, or sloughing of the sides of the wound, that the re-union could not be accomplished. The inference I would draw from cases of this sort is the following — in chronic laceration, there is a chance, now and then, of accomplishing a re-union of parts of the perineum; but, in irritable constitutions especially, it is probable that we shall fail in our attempts. If, therefore, a woman be very pressing and anxious that something should be done, an attempt may be made to serve her, but it is not well to be eager for the undertaking, nor to promise too much, where the probabilities of failure are so great. Reproaches never sound musically to the ear, and to these you lay yourselves open, when, after all your pains and all your promises, the patient finds herself in a condition very different from what had been expected. .

LECTURE XXXIX.

SURGICAL DISEASES OF INFANTS.—INJURIES AND ACCIDENTS.

On the diseases of infants, it is not my design to treat at large, as such an undertaking would lead me into longer disquisitions than the limits of our course will admit. I shall endeavour to make a few strictures on this important topic, confining myself, in the main, to that sort of information which may be of use at the bedside, beginning with those affections which belong to the department of surgery.

When labours are laborious, in consequence of resistance to transmission, whether from rigidity, coarctation, or unfavourable position of the fœtus, it happens not unfrequently, that the scalp becomes intumescent, the tumour commonly lying to the one or other side of the vertex. This swelling rarely requires art, though fomentations and lotions may sometimes be used as placebos, the tumour wasting, in the course of a few days, so that the part soon acquires the natural appearance. Accumulation of the scalp, and perhaps effusion into the cellular web beneath, appear to be, in most cases, the causes of the intumescence. With these swellings of the scalp, inflammation and suppuration are now and then combined, though rarely; these, so far as I have hitherto seen, doing very well, as treated on ordinary surgical principles. Suppuration is, I suspect, generally external to the tendon of the occipito-frontalis muscle. Inflammations of the scalp in infants are, perhaps, more dangerous than similar inflammations in the adult, as the vascular communications are numerous and free between the inner and outer surfaces of the cranium.

The cranial bones are exceedingly moveable, and hence, in

laborious labours, they frequently become displaced; the occipital bone being pushed, perhaps, beneath the posterior edge of the parietals, or the margin of one parietal bone becoming lodged beneath the margin of the other; not to mention that the whole cranium may be thrown back upon the occipital region, or so dislocated, that the summit rises preternaturally above the basis, as may be seen in the crania of certain savages, when deformed by barbarous art. In these compressions of the brain, the fœtus is not unfrequently still-born; and you use the warm bath and artificial respiration, with little effect beyond the excitement of a few sighs, and a little unavailing respiration. It is to be observed, however, that the death of the fœtus seems to depend upon some other cause than the mere force of the compression, as fœtuses may be still-born when the collocation of the bones is little altered; or they may breathe, struggle, and cry directly they enter the world, although, from the deformity of the head, and the intumescence of the scalp, and its evident and forcible compression during transmission through the pelvis, irreparable injury of the brain seemed, at first thought, to be inevitable. Whatever the apparent injury of the head, therefore, attempts should be made to resuscitate the child by the bath and pipe; no case ought to be left, as desperate, till these active resuscitants have been found on trial to fail. The mobility of the bones seems to render unnecessary the replacement of them by active surgical means. Accordingly, of these means, I have had no experience in the cases under consideration, and I forbear, therefore, to give an opinion respecting them.

In facial presentations, the form of the features sometimes suffers but little; but, in many instances, in consequence of accumulating blood, and swelling, and a certain paralytic weakness of the neck, which allows the head to fall about unsupported, the appearance of the face becomes frightful, not to say hideous. These cases generally do well; in the course of a few days or weeks the parts recover their healthy condition, and you are surprised to see a countenance, at first so disfigured, adorned at last, with all the pleasing graces of infancy. The head may be steadied by tapes annexed to the cap and the dress below, and much attention must be given to its due support during nursing. The swelling may, in general, be committed to nature; time and patience will accomplish the rest.

Haighton, by dividing the eighth pair of nerves successively, at the interval of a few months, proved satisfactorily that nervous structure may be repaired. The recovery of the sciatic nerve in Koscioscow, after severe injury inflicted by a Russian bayonet, has already been made the subject of remark. Violence has no place in a wise midwifery, yet now and then it breaks unawares into our operations, and seldom without mischief. In presentation of the nates, as I am informed, under rough management, the anterior crural nerve has been severely injured, and less rarely, perhaps, in those cases in which the arms have been abstracted with difficulty, the axillary plexus has been severely bruised; an iron hook, or a

rude finger, is said to be the usual instrument by which injury is inflicted — beware of violence, therefore : but should injury be sustained, remember that the case is not wholly desperate ; the nervous structure, unless extensively injured, may, perhaps recover itself. Much is to be expected from nature in these cases — little from art. Comfort the friends with these reflections.

In a scientific midwifery, violence has no place ; this apophthegm cannot be too frequently repeated. Even tempered effort is not without its dangers ; it is a sort of elephant in the battle. Sometimes, however, fractures of the fœtal skeleton occur during delivery, and the bones which most frequently suffer are those of the thigh and arm, to which may be added the clavicle, and, perhaps, the bones of the pelvis, and the maxilla inferior. The mere action of the uterus may, perhaps, break the fœtal bones ; but nature, provident in her operations, has rendered this accident rare. More frequently under preternatural presentations, when, in the drowsy moment, undue force creeps upon us, fractures of the thigh or arm, or clavicle, occur in rude attempts to extricate the limbs. "I always break the thighs," was the downright, unblushing declaration of a female practitioner, when stating to Dr. Lowder her method of managing the presentations of the nates. I love her honest plainness. Even Sir Anthony's language could not be more explicit. — Beware.

In ordinary deliveries, it is unnecessary to examine whether the bones are fractured ; but in all preternatural cases, where, from the difficulty of the birth, a fracture may be suspected, examination should be made. On the general principles of surgery these fractures may be treated ; much constitutional irritation does not attend the process of reparation. As nutrition at this age is rapid, repair is rapid. From cutting a tooth, an infant may suffer more, and more dangerously, than from a fracture of the femur or the humerus. Four cases of fracture, two of the humerus and two of the thigh-bone, all ultimately doing well, have been narrated to me by my friends. Might not splints be made conveniently of softened paste-board, or *papier maché?* Many a witty thought has issued from a French snuff-box ; perhaps this may be made a useful one.

Hernia of the brain is sometimes formed with the fœtus, but I forbear to dwell on this monstrosity, as, in the present state of knowledge, it admits no remedy. More frequently we find at birth, on the parietal bone, an encysted tumour, larger than half a pullet's egg, and which may take place to the right or the left of the sagittal suture. That a chasm of the parietal bone, leading into the cranium, never exists at the basis of this tumour, I am not prepared to assert ; but in general, that part of the bone which corresponds with the inner table is complete, the external leaf being alone deficient. The defect of the external table, however, gives rise to extensive superficial excavation, the margin of which may be felt all round at the base of the cyst, and this margin is

liable to lead the uninformed into an opinion, that there is a large chasm opening down into the brain, to the great alarm of those who are about the little patient.

It is not wise to press the brains of a young infant with a tight bandage, for, as our information now lies, this will, I presume, be acknowledged, on all hands, to be a dangerous experiment. Do not, therefore, in these cases, apply a bandage to the cranium, for the bones being mobile, any pressure made on them might be transferred to the brain, which lies beneath. Do not hastily puncture these tumours; the two surfaces of the cranium, external and internal, communicate freely by the vessels: the brain of the infant is prone to inflammation, and frequently these inflammations prove fatal. Time and patience cure a vast number of evils, physical, mental, and moral, and these two catholic remedies, accompanied by placebos, are, perhaps, the best which may be employed here. Astringents and stimulants, however, do seem to be tried with no very doubtful advantage; and port wine-lees, and aluminous solutions, are alternative topical remedies which, from my little experience in these cases, I should feel disposed to recommend. Let your first applications be weak, for the infant skin is tender and prone to mortify; as the parts may bear, the intensity may be increased. The lees may be diffused through bread, so as to form a poultice; of the alum you may make a lotion, beginning with a scruple to six ounces of water. The alum failing, let the lees be tried. Glairy fluid issues when these cysts are punctured; at least, if I may infer generally from a single case, which used to be related by Dr. Haighton.

IMPERFORATION OF THE LABIA, ETC.

In young infants, the nymphæ, or the labia pudendi, are occasionally coherent; the labial cohesion being easily discriminated, while that of the nymphæ requires somewhat closer inspection. When the labia are opened, the nymphæ being in cohesion with each other, in consequence of this separation, the nymphæ are laid flat over the orifice of the vagina, and the blood being pressed out of the vessels, the whole structure becomes pale and scarcely distinguishable from the surrounding parts, so that, at first glance, it seems as if there were no nymphæ, and as if the vaginal orifice did not exist. The gradual approximation of the labia under which the nymphæ begin, as it were, to form afresh — the interposition of a probe easily passed along behind between the cohering nymphæ, and the entrance of the vagina — the declaration of the nurse, that the orifice of the vagina, though now totally vanished, was originally obvious enough, as in other children (for the disease is not usually congenital), these are the principal diagnostics by which the case is discriminated. A knife in these cohesions is rarely required; mere separative pressure is, in general, sufficient to disjoin the parts; or when the probe has been properly placed,

so as to bear upon the connexion, this may often be gently torn asunder, by merely advancing the instrument; take care that the cohesion is not renewed.

With imperforation of the genitals, infants are sometimes born, and this with two conditions of the parts within, for it sometimes happens, that the internal genitals are more or less deficient, while, in other cases, they are formed perfectly enough, with the exception of the barrier, which closes the access from the inferior parts to the superior. When the inferior organs are imperforate and imperfect, it ought always to be our first consideration, whether those organs which lie above are in a healthy state or not — the ovaries, I mean the womb and the vagina. It would be too much to assert, that the determination of these points is wholly impracticable, and even during the first two or three years of infant life; but it should not be forgotten, that the most commodious season for deciding this very important question, is after the period of puberty is gone by. If the ovaries exist in perfection, the womanly changes occur, and to omit the development of the external system; the hips spread, and the bosom swells, and the charms and graces which embellish the sex are found to gather about the whole person; the mind also, from unknown causes, undergoing that consentaneous change, whereby it becomes not insensible to corresponding desire. From the ovaries as their centre, all these effects are emanating, and their manifestation is the best proof that these important organs exist.

A few years, not to say a few months, after puberty, we may, moreover, easily determine, in most cases, whether the uterus and upper part of the vagina exist or not; for if these parts are not wanting, the symptoms of monthly action will be perceived, and, after a time, the secretion accumulating, both the womb and the upper vagina will become dilated, and, on careful examinations by a competent operator, both these organs, when distended, may be distinctly felt; and thus, it seems, from a review of the whole subject, that it is after puberty that we shall most successfully inquire respecting the condition of the genitals within the pelvis. Nor is this to be regretted, for, till the period of puberty, these organs are of no use.

If the internal genitals are wanting, the case admits of no remedy; throughout life, the individual remains a mere girl — neither desiring marriage, nor becoming it; but if the parts above are well-formed, a closure of the vagina, above or below, constituting the only defect of organization, in some cases, at least, the ailment may be relieved and removed, merely by dividing the partition. Before puberty, whatever may be the wish of friends, it is unwise to attempt this, for we are ignorant of the state of the womb, vagina, and ovaries, and the parts are too small and too tender to be well fitted for the knife; but when puberty is gone by, and the condition of the pelvic viscera is known, and the vagina and womb, dilated by accumulation, are become acces-

sible to the knife; the operation, in many cases, may be performed easily enough; and if the opening be sufficient to allow of impregnation, however small it may be, delivery, which naturally lays open this part of the person, may, with a little help from surgery, thoroughly accomplish the rest. Of constricted vagina in conjunction with parturition, it has been my lot to see some bad cases; the stricture was divided, and they have all hitherto done well.

TIED TONGUE.

If you open the mouth, before a mirror, and raise the tip of the tongue, you may observe a sort of ligature, which, while it allows free motion to the tip, assists, however, in conjunction with other bonds, in restraining its more extensive movements, and this ligature is called the frænum. I never saw a case in which the frænum left the tongue too loose, though reputed cases of this kind have been put on record; and it is said that the tongue may be partially swallowed in consequence, so as to lodge over the rima glottidis, and occasion suffocation. Cases, however, are common, in which the frænum is pushed forward to the very tip of the tongue beneath, giving rise to tongue-tying, as it is called, a disease not uncommon, even in female infants.

Nurses, usually themselves profuse of words, have a great horror of this restraint of the tongue, and making their exordium in the received formula of "Lord, sir," (a nursery translation of the classical ædepol of their predecessors, or of the more dignified P. C. of Roman oratory,) breathless and alarmed they come down at length upon the peroration, and tell you the child's tongue is tied! Tongues are not always tied, when nurses please to fancy so; and it is well, therefore, to be in possession of diagnostics, by which the disease may be known. The tongue is free for all its functions, if the tip can be advanced beyond the outer margin of the lip, and, moreover, if it may be placed upon the roof of the mouth, liberation being requisite, if the confinement be such as to restrain from either of these movements. Those who are in the habit of examining the frænum of the tongue in healthy children, can tell, at first look, whether it require a division. Acquire this artist-like glance, for it may be of use to you. There is one right way, and many wrong, in doing most things; and thus it is with the division of the frænum — a little operation, which, if ill-conducted, may occasion trouble to you, and danger to the infant; a wound of the ranine vessels, beneath the tongue, sometimes producing a fatal bleeding. To divide the frænum, you ought to be provided with a pair of scissors, with rounded tips, and which will cut well to their extreme ends. Try them on a bit of damp paper. The nurse, moreover, ought to hold the head firmly, with the face upwards, when the child will frequently scream; for at no age are we fond of restraint; and, at this moment, when the infant is

pushing forth a long-continued cry of thirty or forty secouds, the operator, taking his place behind the top of the head, finds the mouth wide open, and the tip of the tongue a little raised, so that, inserting the first and second fingers of the left hand, he can easily place one upon either side of the frænum beneath the tongue, when, both lip and tongue being protected from the scissors, the frænum may, in a leisurely manner, be divided to any extent deemed necessary. Do not hurry. If nurses and mothers are very firmly persuaded, though without reason, that the tongue is tied, to satisfy them you may touch the frænum with the scissors; the operation, if well done, is of no pain. Do not cut the frænum too far, — do not wound the ranine vessels, or the salivary ducts. If a child be suffered to grow to the age of eight or ten years before the tied tongue is liberated, it may never afterwards acquire a free use of the organ. This is shocking neglect. It would be easy to contrive a pair of scissors expressly for the division of the frænum; they ought to be without points, and should cut at the tip only, to the extent of half a line. Whatever is worth doing at all, is worth doing well; this must be my excuse for dwelling so minutely on this small but delicate operation.

CLUB FOOT.

Very fine children are sometimes born with defects of the lower extremities; and where all the parts of the foot and leg are duly organised there may be a misplacement, the foot being turned too much outwards or inwards. The infant growth is amazingly rapid; a young child will triple its weight in six or eight months after its birth; it will double its length in two or three years; and, during the first months especially, the bones containing but little earthy matter, become as obsequious to external impressions as the future mind. In the cases under consideration, think of this. When the foot is distorted, it may, I suspect, be frequently drawn to its proper bearing. Any apparatus which, without materially disturbing the circulation, has the effect of continually urging the limb towards a healthy relative position of its parts, may be tried, with benefit, in these cases. The tin boot, however, answers this purpose very well, and the apparatus ought to be examined once or twice every day.

Do not needlessly interrupt the circulation by your bandages. If the inner bandage be coated with mild adhesive plaster, it will retain its place with less pressure. "Can you not wait a few months before you tease the dear child with these bandages and instruments?" This question is sometimes put by mothers in a tone of supplication. The best answer is bi-literal no — no, not a month, not a week, a day, needlessly. If the bearings of the limb are to be rectified at all, it must be while the bones are yielding, and the organs rapidly growing. At the end of the first year the cure may, perhaps, be impracticable. Think of the facts

before stated. I have been told of cures which have been accomplished in the course of some eight or ten weeks; but never having had cases of this kind under my permanent care, I cannot decide from personal observation. Vari and Valgi are the classical appellations of these infants. The two patrician families of ancient Rome, probably, derived their names from these deformities.

HERNIA.

Infants are sometimes born with an umbilical hernia, as large as a full-sized orange, most of the intestines lying forth beyond the abdominal coverings, invested solely by the peritoneum; for it deserves remark, that there is generally, if not always, a very large aperture through the muscles and common teguments in these cases, and through this aperture the hernia pushes. Lowder used to relate a case, in which the hernia, being of middle size, the peritoneum became encased with cicatrix, and an imperfect cure was obtained; but, in general, death is the only effectual remedy in these cases — death, of which we have that instinctive aversion (horror, if you will,) necessary to prevent us from deserting the post of life on every slight occasion; but which, after all, in conjunction with generation, becomes an admirable contrivance of creation, whereby structures, unfit for further service, are decomposed, to be modelled afresh in renewed perfection.

When, as very frequently happens, the umbilical hernia is no larger than the tip of the finger, the common teguments usually cover it, and we may cure the disease either by ligature or pressure. When the cord drops, as usually, a few days after birth, if the navel protrude, we may lay over the front of the abdomen a broad slip of adhesive plaster, so as, in part, to repress the intestine; and then, directly on the navel, may be placed a thin plate of tinfoil, about as broad as a shilling, to be retained in situation by a second adhesive bandage, which, completely surrounding the abdomen, may lie over the first. Once or twice daily, the firmness of the apparatus ought to be inspected. When it becomes necessary to change, have everything in readiness, and, if possible, do not excite screaming when the apparatus is removed, lest the navel should start, and the aperture should be enlarged afresh. If the child grimace, as if about to cry, an assistant should be at hand to place a finger over the umbilicus, and to resist the eruption of the hernia; but, unless this eruption be expected, it is better not to touch this part. Umbilical hernia is of slow cure by compression, and, among the lower classes especially, the necessary attention and perseverance may be wanting. In some cases, then, we may find it convenient to attempt the cure of the disease by pushing back the intestine, and closing the sac at its root with a ligature. Great care must be taken not to include the bowel. I am afraid this operation is not unattended with danger, even when the bowel lies clear of the ligature; think well before you have recourse to

it. This operation reminds one of the ancient remedy of the empirics; they used to call it the "royal stitch."

SPINA BIFIDA.

Infants may be affected at birth with dropsy of the spinal theca, concurring with variety in the anatomical condition of the parts. Sometimes the dropsy is in the theca wholly; sometimes in the theca and the cranium too; and the dropsies may communicate. The spinal marrow may, I believe, be perfect, or the cauda equina may be more or less deficient; the nerves of the lower limbs and pelvis being formed, nevertheless, in all their perfection, and stretching into the cavity of the spine to terminate, as Burns has justly stated, not in the marrow, but in that part of the theca which lines the corresponding arches of the lumbar vetebræ; the nerves, in fact, originating, or rather coalescing, at the theca of the spine. When the arches and spinous processes of the vertebræ are wanting throughout the chain, so that the spinal marrow is, I suspect, generally deficient altogether; and, indeed, the disease scarcely belongs to that which I am now considering; but in spina bifida generally, there is a deficiency on the back of the lumbar vertebræ only, forming a chasm, at which one or two fingers may be passed down into the cavity of the spine; and above, and perhaps below, to some little extent, the spinous processes separate into two lateral pieces, so as to become forked, whence the disease is frequently denominated spina bifida. The appellation is not, perhaps, a good one; but if we understand one another, the terms may pass. Life is short — our time may be laid out on more important matters. Over the lumbar chasm, we may find the parts in one of two very different conditions; for sometimes on this part there is a large tumour, bulky as a small orange, covered with a dark, rosy, red skin, marbled with a leaden livid tint; and in other cases, we find upon the chasm a circular brown wrinkled scar, broad as a half-crown, and flat. An infant may be born with this tumour lacerated and open. Hydrocephalus, in conjunction with this disease, may become very obvious, in consequence of the enlargement of the cranium, and the widening of the sutures and the fontanels.

If the medulla spinalis be defective, I presume the case admits of no effectual remedy; but when this is sound, and the disease is, in other respects, favourable, a cure is not impossible; and for this, as for some other useful practical additions to surgery — surely well worth whole volumes of mere musical and well-tuned periods, our race is indebted to a man whose name conveys his eulogy — I mean Sir Astley Cooper. To him, and to my distinguished colleagues, his successors, I must refer you for a fuller exposition of the method of operating; suffice it to remark, that the tumour is punctured with an instrument like a glover's needle, and day after day, by little and little, the fluid is gradually drawn away; the

aperture being secured, more or less effectually, after every drawing, and pressure being kept up by means of bandage, or otherwise. Forty or fifty times, as I learn, it may be necessary to repeat the punctures; the cyst filling repeatedly, but continually shrinking, till, at length, after a succession of operations, the cyst contracts into a sort of cicatrix lying over the chasm, to be afterwards protected by truss. To open the cyst extensively, and discharge the water at once, is, I believe, highly dangerous. In the course of twenty-four hours, death ensued in a case of this kind, narrated to me by one of my pupils. The tumour was mistaken for abscess. The cases with the brown flat scar are not fit for this operation. In hydrocephalic cases, there is little to be hoped. Infants left to their fate, in this disease, perish after different intervals. They may live for weeks, months, or years. They may even reach to man's estate, always labouring under the disease. If the marrow be defective, the lower parts of the body may be defective in feeling. Dr. Haighton used to relate a case of a boy, who would thrust pins into the skin with little suffering; acupuncturation sometimes occasions little pain, even in the healthy.

IMPERFORATE ŒSOPHAGUS.

To be born with an imperforate œsophagus, would seem to be a terrible calamity. Physical evils, however, are, I suspect, oftener more intolerable in prospect than in sufferance. Nature, to make us bestir ourselves, threatens like a step-dame, but corrects like a tender mother. When the imperial clemency conceded the *arbitrium mortis*, the Roman nobles, if my memory serve, not uncommonly gave preference to death from hunger. For sixteen long days and more, a young infant may pine under the starvation of an imperforate gullet — sleeping, waking, weeping, wasting, greedy for the breast, grieved or angry when disappointed; and yet, after all, to judge from the unaffected expressions of the feelings, it may be fairly doubted whether its sufferings from thirst and hunger exceed those produced by many of the smaller infant ailments; and surely they will scarcely bear a comparison with those that result from the suffocating symptoms hereafter mentioned. Those who are placed in situations which expose them to starvation, ought to remain inert; under these circumstances, the less wear of mind and body the better. When a town is beseiged, I imagine that the daily consumption of food might be considerably diminished, if those, whose operations, mental or bodily, can contribute nothing to the defence, would imitate those fasting women of whom the public has at times heard so much, and lie vegetating on a sofa. Infants, when famished by this disease, being in a state of comparative quietude, may sometimes remain alive for two or three weeks.

When the œsophagus is imperforate, all the pains of strangulation may be suffered every time the infant attempts to swallow.

It takes the pap greedily, a small effort of deglutition follows, and then in a few seconds the countenance alters, and the placid look of infancy changes for that of distress and agitation; and the breath is intercepted, and the face darkens, and the chest heaves, and the muscles quiver, and convulsions, followed by a dead quiet, ensue; the child remaining in a state of asphyxia, till the very sight of it, as you watch returning life, shortens the breath with anxiety, and lengthens the seconds to minutes. At length you think it is all over, when, as you rise from the chair, a small struggle is perceived, and the food taken is emitted from the mouth, life and breath being again restored, to be again miserably interrupted, should the attempt be repeated. Infants thus treated suffer many deaths. Severer symptoms are not produced by strangulation with the rope. Food, therefore, or the breast, ought not to be offered when those violent symptoms result. Life might, perhaps, be prolonged, by injections from the bowels; but the mind at this tender age being wisely constituted, without the instinctive fear of dissolution — of no use to a being which cannot help itself — a few hours or days are not desired; and why should we attempt to add a little space to existence, and to prevent that death which nature uses as the only effectual remedy for the disease?

When, during swallowing, the food passes the pharynx or hinder cavity of the mouth, muscular action grasps the bolus, and, at the same time, closes all the passages, with the exception of the gullet, and, of course, the air-tube among the rest. Observe the rapidity with which the water, in large gulphs, flashes along the œsophagus of the horse when drinking. When we are well, and full of appetite, deglutition, like winking, is accomplished with the same promptitude; and, therefore, the stay of the food in the pharynx being less than momentary, the closure of the passages is unattended with inconvenience. But with infants in whom the œsophagus is imperforate, this is not the case; for, the food entering the pharnyx, the rima glottidis becomes closed, and the bolus, involuntarily grasped on all sides by this muscular cavity, being propelled towards the œsophagus, where descent is prevented, the aliment remains in the pharnyx, spasmodically detained, forming a sort of gag, till approaching death relaxes the muscles, opens the passages, suffering the food to escape, and the air to return to the lungs.

Ah! if our surgery could triumphantly interpose with one of its natural miracles — if the art which gives hearing to the deaf, and sight to the blind, and legs to the lame, and patent legs, too, could also help us here! but this may not be. One case of this was dissected by Mr. Hallum; another in conjunction with him by myself; a third by Mr. Burrows in the city; and, in all three of these, throughout the mediastinum to the extent of several inches, the œsophagus was unformed, or represented by a mere ligament, stretching from the closed extremity of the œsophagus to the orifice of the stomach. The trochar and canula, therefore,

can be of no service. Death is the natural remedy. Infants, who die under this disease, are, I believe, frequently thought to perish from convulsions. As I know myself of three cases, I presume it is by no means uncommon. Van Swieten describes an affection called a swallowing of the tongue, in which suffocation is said to follow the attempt to swallow, in consequence of the tongue, too loose in the mouth, getting into the cavity of the pharnyx, and lodging over the rima glottidis. Having never seen this disease, I feel inclined to think that Swieten may have been deceived by an imperforation of the œsophagus. Should swallowing of the tongue really occur — if the practitioner do not reach the infant till apparent death is produced, the tongue ought to be drawn into place with the incurvated shank of a spoon, or any other convenient instrument; and though the child have lain to appearance dead for twenty or thirty minutes, artificial respiration and the warm bath ought to be diligently tried. New-born infants may, now and then, be resuscitated, after they have lain in a state of asphyxia for a good part of an hour. We ought not, therefore, in these cases, despair too soon.

LECTURE XL.

IMPERFORATE INTESTINES.

In new-born children we sometimes meet with closure of the intestinal tube, and this closure may occur in any part of the intestines, larger or smaller, the obstruction sometimes lying near the pylorus, but far more frequently at the extremity of the rectum, when the disease is denominated the *imperforate anus*. Vomiting, wasting, enlargement of the abdomen, and a total defect of evacuation from the bowels, are the more striking characteristics of the closed rectum; and the disease, when once suspected, is easily ascertained by a careful inspection and manual examination of the part. If the closure be in the *duodenum* or *jejunum*, it is distinguished with more difficulty; but vomitings, wastings, and the want of a feculent matter, formed from digested milk, will generally enable us to detect even this variety of the disease, provided our attention be vigilantly awake. Four or five cases of imperforate anus have been shown to me by my obstetric friends, whence I infer that this malformation, though not common, is tolerably frequent in its occurrence. The obstruction which lies above is, I presume, rarer, as I have never met with a single instance of it in the living infant, though there are examples of it in most of our anatomical museums. Possibly, however, many young infants may sink under this disease, less obvious than the preceding variety, and the real nature of the affection may remain undeveloped, from the want of an examination after death.

Life is undesirable with artificial anus as the price of it; and if, therefore, it were practicable to make an incision into the abdomen, and to examine the intestines of the infant, fold by fold, so as to reach and lay open to the abdominal surface the part where the obstruction lay, I should not feel inclined to admit of such an operation in my own family. Where the aids of art are so imperfect, it is, I conceive, better to commit ourselves to the hands of nature, who does all things well. But, although those cases in which the obstructions lie in the smaller intestines seem to admit of no effectual remedy, yet, when it is the anus only which is imperforate, there is much that may be done.

How long an infant may live with the rectum closed, is, perhaps, not clearly ascertained; many days, many weeks, nay, in some instances, perhaps, for several months, life may be protracted, if I may judge from one or two cases which have been related to me on somewhat dubious authority. Certain it is, that in these cases the infant, relieving itself by vomiting, may survive for some weeks, though, I suspect, the general health becomes gradually and greatly impaired in consequence. Now experience shows that when the anus is imperforate, it is better to wait a few days before any attempt is made to open it; for should we operate immediately, if unskilful especially, we may entirely miss the rectum, its cavity at this age being small; but if we wait for a few days, or weeks, till the gut is become dilated, a very small knowledge of practical anatomy will enable us, readily enough, to cut into the part. In general, therefore, it is wise to wait till the intestine is distended; when inattentive to this rule, the ablest surgeons may sometimes fail to find the cavity of the gut.

A small opening is apt to close again; a large opening may carry the knife into numerous hemorrhoidal vessels, and, in young infants, internal bleeding, and death, may now and then be the result. In opening the anus, therefore, I should advise you, in these cases, to content yourselves with making room for a dilator, about as large as a female catheter, when a further enlargement may be obtained gradually by daily dilatation. I presume the patient will be more likely to retain the stools afterwards, if the anus, formed by perforation, is not made too capacious.

When the anus is once laid open, great care must be taken to prevent its closing afresh, particularly if the opening be small. For this purpose bougies should be passed daily, or a dilator ought to be employed; I have seen a child die in consequence of a second operation, which, by attention to this rule, might have been entirely prevented. The precise method of operating I leave with the surgeons. I may remark, however, that the escape of gas, or meconium, indicates when the intestinal cavity has been entered; and that the access to the rectum may in some, perhaps in most cases, be rendered perfectly easy by irritating and producing tenesmus at the time of the operation, and by waiting a few days, as before recommended, so as to allow the bowel to enlarge and come down. When you first examine, perhaps, you find

the end of the intestine lying, in good measure, beyond the ready reach of the knife; but at the same time of the operation the gut will often be found to come into sight, provided you observe the two rules which are here prescribed.

Till I have had proof to the contrary, I incline to think, that when the imperforate anus is opened in this manner, the infant will possess the power of retaining the fæces, unless fluid and urged by diarrhœa; and the part being exercised in this function, it is not unreasonable to suppose that its strength will increase with age. In affirmation of this opinion, however, I have no case to bring forward.

In some few cases, the rectum opens in girls into the vagina; and in boys, into the urethra and bladder; perhaps a cure might be accomplished by intercepting the communication, and cutting down into the region of the anus.

DIFFICULT MICTURITION.

After birth, infants are sometimes unable to pass the water, and this from various causes; inertness of the bladder, obstruction of the urethra, and closure of the orifice of the urethra by the prepuce, being the three principal. Friction with the warm hand of the nurse, fomentations with warm water, and distention from accumulating urine, are the three principal remedies for inertness of the bladder. A good and careful surgeon may sometimes pass a blunt probe, properly curved, into the bladder with advantage. Blisters, however small, are dangerous remedies; slough and death may ensue.

When the prepuce obstructs the urethra, incisions, lacerations, or amputations, can rarely be required; though the circumcision of Hebrew infants, shows that much violence may be done to these parts on the eighth day, with impunity. At this ceremony I have myself been present, and I can assure you that the Christian neophytes may think themselves happy in exchanging blood for water, even though they should imagine, with some sturdy Anabaptist, that total immersion is, in our latitudes, necessary to purify from the original stain, and secure to us a free entrance upon all the privileges of the new, as distinguished from the more ancient covenant. In general, when the orifice of the prepuce is small, and not placed in apposition with that of the urethra, poultices and fomentations will relax the skin, and a little dilatation with the probe will enlarge the opening sufficiently, so as to give the little sufferer a free passage for the urine, and more is not required till the period of puberty.

MALFORMATION OF THE MALE URETHRA.

Imperforate urethra I never saw, and know little of its management. In the end it would, I conceive, prove a vain attempt to lay open a passage artificially through the glans penis and the cor-

pus spongiosum. To perforate would be no easy task, and should the child survive, a closure would probably follow. For the emission of the urine, I presume an easy passage would be obtained by cutting directly down into the part where the closed extremity of the urethra lay, whether before or behind the scrotum. Sometimes the urethra opens originally near the scrotum in front, or behind, and I fear there is no remedy. If the female genitals are apt to conceive, it is not necessary, for the purposes of generation, that the male material should at first penetrate far into the vagina, though a deep penetration seems to facilitate. Three cases I know of, in which, to the surprise of the parties, impregnation occurred, although the accession of fluids to the os uteri was thought to have been impracticable. For the purpose of impregnation, it is not necessary that the fecundating power should enter the person by the *usual organs*. I know of an individual, the father of a very fine child, marked strongly with the paternal resemblance, and, in this individual, the urethra opens in the corpus spongiosum, between one and two inches from the glans. In general, the powers of generation may be impaired a little when the urethra opens in the region of the frænum, still more when it lies near the front of the scrotum, and most of all when it opens on the perineum behind this receptacle. Arts, however, are not wanting, by which impregnation may be accomplished, even in the latter case. These principles may be of use to patients labouring under this defect.

PURULENT OPHTHALMIA.

When infants are seized with purulent ophthalmia, the conjunctiva reddens all over, and matter forms in such large abundance, that it seems as if the ball were dissolving; and the eyelids, too, swell, thicken, and become everted, and, in the severer and more chronic cases, the transparent cornea darkens, and the sclerotic tunic may slough; total dissolution of the organ ensuing. Of these dangerous forms of the ophthalmia I have seen but little, and my opinions, therefore, are of no value. In the ordinary and early attack of the disease, ten grains of sulphate of zinc, dissolved in two ounces of rose-water, will be found an excellent collyrium; but I must commit you to the oculists. Remember, that it is upon the proper application of the collyrium that success mainly depends. If, in a careless, lifeless manner, the wash be dabbed upon the eyelids, what good can ensue? To give your remedy a fair trial, the infant should be placed with the face upwards, and then the eyelids being tenderly, yet firmly separated, so as, if possible, to get a glimpse of the ball, the collyrium should be dropped upon the surface of the eye, and this, too, three or four times a-day, oftener or seldomer, stronger or weaker, according to the effect produced. With a syringe — never, on any former occasion, used in case of gonorrhœa — the solution may, if necessary, be injected by a

competent hand, at the outer angle of the eye between the eyelids. Ivory is preferable to pewter.

SYPHILIS.

The *lues venerea* in young children I have not frequently seen, nor do I know of any plain practical characters by which it may be recognised at a glance; but cutaneous diseases, not of the ordinary infantile character, and discharges from the nose, with offensive smell, ought to lead to inquiries, and these may terminate in the discovery of a source of infection.

It is not among the houris in the thorny bowers of sensual pleasure that the poor infant finds the origin of this loathsome disease; at this early age it enters the system by other inlets, with which, however, it is highly proper that you should be acquainted, that your inquiries may be directed accordingly. What is the origin of physical evil? Those who declare it to be penal must surely be much embarrassed with the accidents and diseases to which the fœtus is liable; thus, not to multiply examples, the fœtus may be crushed in the uterus, like those on whom the tower of Siloam fell; and the child may be born with marks of the small-pox and the venereal disease, two of the most terrible scourges of our race. That the venereal disease, when occult in the father, may, as it were, be congenital with the offspring, I am not prepared to assert, though I incline to the affirmative; but I have no reason to doubt, that it may be communicated by the mother. It is, I conceive, pretty certain, that a woman who has had the small-pox, and is herself secure against another attack, may nevertheless communicate the disease to the fœtus within her person; that poison which fails to operate on her own structure, transfusing itself through the intervention of the maternal blood to the ovum in the uterus, and giving rise to a great deal of violent disorder in the fœtus. The same holds true of syphilis; and, therefore, not losing sight of the possibility of a direct paternal infection, remember, when investigating these cases, that, from the maternal system, the infant may possibly become infected even while it is lying in the uterus.

If there be a chancre in the passages, the child may, I presume, be infected during the birth, an ulcer being produced on the tender skin of the lips and nostrils, near their margins, not to mention the angles of the eye. When the mouth is ulcerated, it may infect the nipple of a wet-nurse, and the sore produced there may, probably, infect the mouth of another infant; so that a second source from which the syphilis of young infants may take its origin, is, I conceive, chancre, whether on the genitals during birth, or on the breast and parts adjacent during suckling.

Independently of experience, I should scarcely have suspected that the milk of a nurse, herself not manifestly affected with syphilis, might become the cause of this disease in the child that

sucks her; and yet, I suppose, there can be little doubt of this; nor, after all, is this more surprising than the communication of small-pox to the ovum, by a mother exposed to the infection, but secured by former attack from obvious signs of the disease. Dr. Lowder used to relate the case of an infant apparently syphilitic, whom he twice cured by mercury; when, the symptoms recurring a third time, he began to suspect that the infection was drawn from the mother; the child, therefore, was weaned, and then, without further difficulty, he entirely subdued the disease. Mercury given to the nurse will, it is said, cure the child at the breast. When the system is under the influence of mercury, a watch carried in the bosom may, I am told, exhibit the stain of the mineral.

These facts seem to prove, that both the venereal virus and its antidote may be found in the breast-milk.

When an infant has syphilis, first ascertain and intercept the source of the infection; if the breast be in fault, wean. If a hired nurse be employed, she must be changed; but it is needless wantonly to throw a taint upon her character; remember the uncertainty of a medical diagnosis; it is reason sufficient for dismissal, that the milk does not agree; if your suspicions are strong, tell her privately not to take an engagement in another family.

Mercury may be given in the cure of infantile syphilis: washed calomel, blue pill, and chalk and quicksilver, being principal preparations. Calomel is rough; blue pill may be mixed with mucilage, when it is easily administered in any quantity. Continue the medicine for two or three weeks after the obvious symptoms are disappeared. Diarrhœa is to be feared; perhaps syrup of poppies, extract of poppies, and opium, are the best preventives, but beware of an overdose.

MEDICAL DISEASES OF INFANTS.

To investigate and treat those diseases of young infants which fall under the care of the physician, is no agreeable task, for at this early age we are often surrounded with more feeling than judgment; and as the child cannot speak for itself, its complaints are sometimes involved in much obscurity. In fact, we are often compelled to investigate the complaints of young children much in the same manner as those of animals, by looking to certain external signs; and of these the following are the principal deserving your attention: —

The diseases of young children frequently exhibit marks upon the skin; the surface of the body, therefore, ought always to be inspected; and, in doing this, you may, at the same time, observe the degree of plumpness or emaciation, as well as the bulk of the abdomen, which is always large in infants. The body may be cooler than natural, and is frequently warmer; this heat showing itself in the hands, feet, and mouth, and head more

especially; do not, therefore, neglect to inquire into the temperature of the child. Croup, hooping-cough, measles, gastric cough, thoracic inflammations, and so on, of course affect the breathing, and to the action of the lungs and thorax, therefore, our attention should, in all cases, be directed. In convulsive affections the scalp is hot, the fontanels beat more forcibly than the radial artery, even the hair sometimes grows very fast, and the head sweats; inquire into all these points. In chylopoietic and cerebral affections, so common in children, the number and character of the stools change, and vomiting is occasionally produced. Infantile vomiting is of less importance than the vomiting of the adult; and, it should be observed, that the rejection of coagulated milk is no proof of gastric disease; for coagulation is one of the first effects produced by the healthy digestive juice. The actions of young children ought not to pass unnoticed; they raise the knees to the abdomen when affected with colic; put the fingers in the mouth when teething; pick the nostrils (when older) in worms or analogous affections; and when disposed to cephalic diseases, they may roll the head on the pillow, or frequently apply the hand to it. In young children I pay but little attention to the pulse; even in health it is nearly twice as frequent as in the adult: at birth, about 140; at the end of the first year, 120; of the second, 110; of the third and fourth years, about 96; in the seventh, about 86; in manhood, various, from 70 to 80 in the minute; and, in old age, sometimes as low as 60. When investigating infantile disease, do not lose sight of the guns.

In young infants, opiates must be given with great caution; for though some, under convulsive and bowel affections, bear anodynes very well, there is always a fear of an overdose; from half a drachm to a drachm of good syrup of poppies, (not treacle and laudanum,) or two drops of the tincture of opium, are a full daily quantity for an infant within the month. Negligent assistants ought not to be employed to measure out the preparation; infants have sometimes been killed by overdoses; and still more frequently they have become drowsy, so as to neglect the breast and food for hours together, to their great detriment in bowel complaints. It is to be regretted that poppy syrup, so useful to children, varies so much in its strength and quality.

Leeches sometimes draw from young children more than intended; and one leech may be too much when a child is much reduced. It has been stated that, like the horse of Baron Munchausen, if the hinder end of the leech be cut away, it will draw more copiously, being a sort of living pump, which gives off at one extremity what it absorbs at the other. When leeches are placed over bony surfaces, the bleeding (if necessary) may be more easily restrained by pressure; and the hand, sternum, and cranium are convenient places for their application. Besides compression and lunar caustic, a useful help for stopping the blooding from the leech-orifices, is a small portion of clean sponge, easily passed

down by means of a probe into the cellular web under the skin, where the bleeding vessels are situated. Infants are best bled from the external jugular vein, particularly in head affections; and when the blood can be drawn in this manner, we know precisely the measure. What quantities may be drawn at once, must be determined by circumstances; but the following tabular statement of quantities of blood, which I have taken away myself, at different ages, may, perhaps, be of some use to you: —

From a child of	oz.	oz. aver.
2 months old, from . . .	1	to 1⅓
4 months	1½	to 2
8 months	2	to 3
12 months	3	to 4
13 months	4	to 5
3 years	8	to 10
6 years	10	to 12

Beware of blistering infants, especially with eruptive diseases; if a child is under three years of age, you ought not to leave a blister on the skin for more than three hours together, without well considering what you are about. After removal of the blister, vesication will generally ensue. Blisters, large and acrid, and of long application, are, it is to be feared, very apt to produce sloughing and death. Dreadful cases of this kind have now and then been brought under my notice.

The infantile diseases, like those of the adult, arise from causes exceedingly various; but, in most cases, irritability, acid acrimony, and errors in diet, have much to do in producing or modifying them. Children sometimes become gross and ailing because they are supplied too copiously with breast-milk; but far more frequently they suffer, because for human milk other food is substituted, marasmus and diarrhœa being the consequence. Children there are, and many, which thrive wonderfully upon pap; but some, and not a few, after two or three weeks' trial more especially, are found unfit for artificial food; to them other food than the breast-milk is poison. Arsenic itself, though of more rapid operation, can scarcely produce more terrible effects than spoon-meat in such cases; excoriations of the bowels — tormina — diarrhœa — death, not to mention dissolution from mere wasting. The rapidity with which children are brought back from death's-door, under the use of the breast-milk, is, in some cases, very striking, and is a further proof of its congeniality. So important is this aliment in these constitutions, that the milk should be drawn from a woman's breast, and given with the spoon or bottle, if the infant be too weak to suck. Within the first one or two months especially, no infant ought wantonly to be put upon spoon-meat. When there is purging, wasting, or cephalic affection, our first inquiry should always be, "What is the diet of

this child?" If there be a wet-nurse, examine the evacuations, for when the breast is deficient, hirelings will sometimes clandestinely administer other food than the milk, nor can they be brought to confess it. All this is very shameful — no doubt. The nurse ought to be immaculate; or if otherwise, she ought to accuse herself; only look at the excellent examples which she sees every week-day, and the orthodox and edifying advice which she receives every Sunday. Pity it is that our intimate acquaintance and bosom counsellor should be a great rogue; but so thou art, poor human nature! Ah! that *pomum Adami*, we may always feel it in the throat!

I can hardly acquiesce in the opinion of those who maintain, that the evacuations of infants are naturally acescent; and certainly in health, the marks of acidity are at most very faint. Infantile evacuations, when natural, have much of the odour of new milk, and are of bright yellow tint. In some cases, however, these discharges become as sour as vinegar, and as green as baize, especially if breast-milk be denied, and cephalic or bowel disease may be the result or concomitant; it is always proper, therefore, in these affections, to examine the evacuations generally, and more especially their acidity, giving antacids if necessary — chalk if you wish to shut, magnesia if you wish to open, ammoniacal preparations if you wish to stimulate the older children, and carbonate of soda if you desire a remedy of powerful antacid operation.

There is a great similarity between the nervous habits of women and children and poets, and in all much, frequent, and various commotion is produced by small causes — by words, looks, and accents, and a thousand other baubles; children, therefore, and those resembling them in nerves, become miserably obnoxious to nervous diseases. The proportion of the nervous system to the rest of the body is greater in the infant than in the adult. The cerebral vessels of the infant are much more prone to increased action than those of the healthy man; there appears, in earlier life, to subsist in the cerebral vessels something of that irritability which is afterwards found in the mammaries and the pudendal. To these two causes, joined with a greater liveliness of the cerebral structure, the nervous temperament may, perhaps, be attributed; and in all cephalic and bowel diseases, therefore, great attention should be paid to the head, to its refrigeration, I mean, and the prevention or relief of the increased action of the vessels. Hence vegetable diet, leeching from the temples, bleeding from the jugular vein, evaporating lotions, and douches; nor must anodynes be neglected, nor the removal of irritants, particularly in the gums of older children.

RED GUM.

The *scrophulus intertinctus* is well represented in Bateman's plates, and is so common and gentle that it excites but little atten-

tion; cutaneous patches, of a red colour, of an area varying between that of a split pea and a silver penny, constitute its principal character; in a few days the disease always ceases spontaneously. Do not confound it with measles. As there are no catarrhal symptoms nor febrile, and as the eruptions differ, the two affections are easily distinguished; look at Bateman's plate. Nurses call the disease the red-gum. In the severer varieties there is a minute elevation in the centre of the red patch.

JAUNDICE.

Cullen treats of the *icterus neophytorum* as if it were a very formidable disease; and cases with fatal organic disease of the liver may, perhaps, now and then occur. In infants, however, jaundice is never scarcely a dangerous disease, and it is of very frequent occurrence. Surely Haller is wrong in supposing that jaundice is produced in the infant by a clot of milk closing the ductus communis choledochus; for when the skin is yellow, often the bile from the bowels is very abundant. The real cause of the icterus seems to be a redundancy of the bile under which a gorge and consequent absorption and reflux, are both of them produced in the same manner, as if obstruction existed in the passages. In a few days the yellowness vanishes: a tea-spoonful of castor-oil may be given.

COLIC.

Flatulent colic is common in infants, especially if they are being poisoned by spoon-meat. Give the breast-milk; change the nurse if the milk disagree. Dill-seed water, and friction of the abdomen, are good carminatives. *Cantando rumpitur anguis.* Nurses fancy that a lullaby is of use on these occasions; it may soothe the nerves, and is not, perhaps, altogether without its efficacy. A fit of anger, or some other nervous commotion in the nurse may, perhaps, produce this disease; it alters the quality of the milk.

CEREBRAL AFFECTIONS.

Hundreds of children are yearly carried off by *cerebral affection, convulsions, hydrocephalus*, or a mixture of the two. In some infants the convulsions become chronic, but far more frequently they are acute, of a few days or a few hours standing. During the fit, the child is insensible; dragged about by spasms, with fixing, or staring, or partial closure of the eyes, and distortion of the features, which darken, and assume an ashy tint. The fontanel often throbs, and the scalp may be hot. There is evident analogy between these infant fits, and those of puerperal women. A single paroxysm may destroy, but more generally not so. When

the child is slumbering, it is twitched gently, and smiles, and half discloses the eyes, and looks very charming — with rosy cheeks and brightened eyeballs, and a mind more active than ordinary, convulsions may be apprehended. These smaller symptoms are called inward fits. Our predecessors, besotted with superstition, always prone to ascribe nervous affections to demoniacal agencies, took it into their heads, that infants, when dozing, smiling convulsively, and starting, were holding converse with some airy being, charmed with their tender graces, and that the convulsions which followed were occasioned by a desperate struggle to escape from his grasp. This explained why children, the most forward and beautiful, as before observed, are most liable to this disease. There is a very pretty catch, called the "Erl King," which turns entirely on this piece of foolery. Evening is often the apparent cause of the cephalic affections in children, and to this, as the song runs, the infant is exposed. The reign of imagination is likely to cease, when that of knowledge is established, and then — the dull realities of life and feelings, like those of five-and-forty. The real cause of the beauty, the brilliancy, the precocity, the dissolution of the child, is the press of the blood towards the brain, and perhaps of the teeth towards the gums; this gives glow to the cheek and splendour to the eye, and activity to the intellect, and death to the mother's hopes. Among the lower classes of the south of Europe, if I am rightly informed, nothing alarms the mother more than the commendation of her infant's beauty. The dread of Nemesis seems still to prevail even in Christian Italy, and such praise is supposed, in some unknown manner, to exert malignant influence. I have myself more than once been told with tears, that, just before the fit, some friend had been remarking, "how pretty the child looks:" but enough of this. Tumours, effused water, effused blood, and accumulation, and hurried circulation in the cerebral vessels, appear to be, in most instances, among the more immediate causes of this disease; and of these causes, congestion and aqueous effusion are the most frequent. Blood is, I believe, rarely poured out, and tumours are uncommon. All these causes, perhaps, operate by pressure, but I doubt. Full diet, damp air, irritation in the primæ viæ, dentition, hooping-cough, measles, and other acute diseases, are the more common remoter causes, and the convulsive and hydrocephalic affections may arise without any very obvious excitement. The evacuations are generally knotty, mucous, serous, and green. Scrofulous constitutions appear to be especially prone to the disease.

The essential part of the treatment may be comprised in few words: in chronic cases, after effusion has taken place, bleeding from the head is of very doubtful propriety; but it seems to be a principal remedy if the attack is sudden and recent. Blood may be taken by leeches, or from the jugular vein; of the quantities, you may judge from the table already given.

To clear the chylopoietic viscera, is always proper in these convulsive and hydrocephalic affections; ipecacuanha and calomel, or other laxatives and emetics, being employed for the purpose. Pastry and fruit are sometimes brought away in this manner, given, perhaps, to please the child by some indiscreet acquaintance.

In convulsive affections, be sure to refrigerate the head, particularly if the attack be recent. Let the hair be removed by the razor, or by the diligent use of the scissors; æther and water, vinegar and water, or the liquor ammon. acetatis, being employed in the way of lotion. Take care of the eyes. Ice may be thought of; water may be poured over the scalp from the coffee-pot; this is, in fact, *la douche*. Once a day, or half-a-dozen times, for a few seconds, or for a few minutes, the administration of refrigerants may be continued, according to the effect produced. Coolness of the scalp, and paleness and shrinking of the features, are the indications that the refrigerating applications have exerted their full operation. Warmth about the head, pulsating fontanels, and inward fits, are the best signs that the refrigerants are again required.

To equalize the circulation, the warm bath is of great service; and although timorous mothers are very anxious lest the water should weaken, I think I never, in one instance, witnessed a dangerous debility produced in this manner; and of the bath I have made frequent use. 97° of Fahrenheit's thermometer appears to be a very fit temperature; ten or fifteen minutes is an average period of immersion, to be lengthened if the child seems lively, and to be abbreviated should faintness occur; perhaps it is better to keep the head above water.

If, after three or four immersions, the child still scream when bathed, the bathing vessel may be covered with a blanket, and this being gradually pressed down with the infant, the water transudes almost unperceived through the texture, so that the little patient is in the bath before it is aware of it. When the bath is obstinately refused, wrapping the infant in a flannel, wrung out of water at the temperature of 97° of Fahrenheit, may be found an excellent substitute; it may lie there among the folds, as comfortably as in the womb of the mother. If you wish to make the child superlatively happy, tell the friends to put a few broken corks in the water: *Dis miscent superis.* Thirty or forty years afterwards, they would not find half the pleasure in a globe and sceptre.

I have known infants to be regularly attacked with convulsions every time they screamed; vex them, and a fit ensued; hence the importance of keeping all quiet. When the other remedies, namely, bleeding, purging, refrigeration of the head, and warm immersion, have been used, quiet may sometimes be insured by syrup of poppies, or other anodynes. I know that in convulsive cases, with much lethargy, protracted for one or two weeks toge-

ther, infants, sometimes unexpectedly survive; and I have seen these recoveries recur under the use of opium, in such doses as decidedly affected the system, given with no other view than that of easing the distress of the little sufferer. Lowder used to state his conviction, that opiates were of effective use in curing the disease; and certainly my own persuasion is, that when administered in cases verging to the chronic form, and attended with distress and restlessness, they not only do no marked injury, but tend to accelerate the cure. I wish it were in my power to be more definite in my statements here; but I want more light.

When the disposition to cerebral afflux, and general hurry of the circulation, is obstinate, digitalis may deserve consideration. It is a dangerous but powerful agent, and must be sedulously watched. In convulsions, inquire whether any irritant is in operation. In all cases when the gums are suspected, they ought to be lanced.

A warm surface, a cool scalp, a vegetable diet, and gums lanced, when necessary, are, I believe, the best preventives of hydrocephalus and convulsive affections. With such children, evening walks are dangerous. Inward fits, bright eyes, glowing cheeks, and that slight irritability of temper, which tender mothers deem an additional interest, constitute some of the plainer indications of an approaching attack. In one family, sometimes five or six infants are lost in succession under these cephalic affections; the necessity of preventive treatment is, in such cases, obvious enough.

SEROUS DIARRHŒA.

Serous diarrhœa is a disease which proves the death of many infants, especially within the month. Ten or twenty watery evacuations, green or becoming greenish, may occur in the course of the day. In the course of twenty or thirty hours, the fat may be absorbed so rapidly, that the skin, hanging loosely over the body, reminds one of the modish dresses of the day; and the body at first, perhaps, disposed to heat, becomes cold, pale, and collapsed, the patient recovering gradually, or dying at the end of some three or four days. This diarrhœa is more particularly dangerous, if the infant, not above a week or two old, has been gradually pining before the attack.

Mere irritability of the chylopoietic apparatus is not always, nor, perhaps, often the sole and immediate cause of these attacks. In some severe cases, superficial ulcers are found in the villous membrane after death; in others, on different parts of the intestinal surface, we discover spots of increased vascularity. When the conjunctiva, the urethra, the vagina, and the Schneiderian membrane, are inflamed superficially, they all increase in their irritability and their secretions, unless the inflammation be pushed beyond a certain degree; and it seems not improbable, therefore,

that in infants, the serous diarrhœa may more properly be referred to inflammation, than simple irritability of the inner surface of the membrane. In the compass of one foot of intestine, you may find fifteen or twenty superficial ulcers, large as the surface of a split pea.

The substitution of other aliment for the human breast-milk, is the ordinary cause of watery diarrhœa; and to correct this error, is the first step of the cure. As observed before, if the infant be too weak to draw from the breast, the milk should be procured by proper drawing instruments, and administered with a spoon. Unless the human milk be promptly supplied, there is no reasonable hope of cure. In some cases, when the disease has been recent, I have, to appearance, successfully treated the watery diarrhœa on the antiphlogistic plan; but poppies, opiates, antacids, and aromatics, are the remedies which have appeared to have the best effects; and at present, I know of none preferable. Two or three drops (not minims) daily of the opiate tincture, in slighter cases, may check the diarrhœa much; the great evil of this, and, indeed, of all the anodynes, is, that they may make the infant so torpid, that it neglects to draw the breath. Beware of over-dosing. A useful formula, in these cases, is the following: of aromatic confection, one drachm; of poppy syrup, (genuine,) one drachm; of dill-seed water, an ounce and a half; of spirit of nutmeg, thirty or forty drops. A tea-spoonful to be given after every, or every other watery evacuation, unless the infant be drowsy, so that the whole may be taken in the course of the twenty-four hours. Till the breath is out of the body, you must never despair of children labouring under this disease.

APHTHÆ.

Infants are obnoxious to a sort of specific inflammation of the mucous membrane, the thrush, or aphthæ, as it is called, and which may attack the mouth only, or the whole length of the alimentary tube. That the milder thrush is begun, we may suspect when the nipple is aphthous and the child is drowsy; and when the suckling is frequently interrupted with crying, and the tongue and inner surface of the cheeks are red and scattered over with a substance like the curd of milk. When, in conjunction with these symptoms, the bowels purge, and the stomach vomits, and screaming and gas indicate intestinal spasms, and an aphthous appearance is remarked in the perineum and parts adjacent to the anus, we may then reasonably infer that the whole tract of the intestinal tube is affected with aphthæ, or with aphthous irritation. The vagina, invested by a membrane like the oral epithelium, is, in women, sometimes attacked with a disease, which I conceive to be very analogous to the thrush of infants; and, under this disease, large quantities of curdy matter will sometimes form itself in no sparing abundance. Now, what is the exact nature of the white specks of infantile thrush I am not certain, but it appears to me, that it consists of a morbid secretion from the mucous membrane.

When thrush is attended with purging, it may, I believe, be best treated like the aqueous diarrhœa just considered. When confined to the mouth, borax, mulberry syrup, and other stimulant astringents may be used with success. A useful linctus consists of borax one drachm, and of simple syrup one ounce, or honey may be substituted for syrup, if not too irritating. Of this linctus, a little may be put into the mouth repeatedly in the course of the day; the best instrument for diffusing it over the mouth is the child's own tongue.

ABDOMINAL AFFECTIONS.

Mesenteric obstructions are not, I think, frequent in very young children, but, without such obstruction, you may frequently meet with an inflated abdomen, and a gradual wasting of the other parts. *Marasmus*, as it is called, usually, I think, arises from one of the three causes, — a denial of the human breast-milk; an inertness of the chylopoietic viscera, which either form their secretions too sparingly, or of deficient digestive power; and an afflux of blood on the head, with, perhaps, a concealed hydrocephalus. When the chylopoietic viscera are inert, without cephalic disease, I have seen much apparent benefit from Cayenne pepper, and quinine in pill, according to effect produced, with a dose of blue pill, or a grain or so of calomel, two or three times a week. Think of intro-susception, bowel irritation, bloody stools, and tenesmus, and beware of too frequent or too large a use of calomel. Change of air, and country air, or of the sea-shore, seem sometimes, in marasmus, to do more good than all our medicines.

LECTURE XLI.

AFTER-TREATMENT OF THE PUERPERAL STATE.

Although there seems to be no doubt that the majority of puerperal women would do perfectly well, even though they were subjected to no particular rule of discipline; yet, as it is certain that women become more susceptible of disease after parturition has taken place, a particular method of treatment is usually prescribed even for the healthiest and most robust women, and of this I now proceed to speak.

Immediately after parturition has been completed, if you have no reason to suspect that laceration of the perineum has occurred, it is not necessary that you should examine this part; but if, from the circumstances of the labour, the rigidity of the softer organs, the largeness of the child, the unfavourable position of the head, the use of instruments, or other considerations, you have reason

to believe that more or less laceration of the perineum has taken place, a very convenient time of satisfying the mind upon this point, is the moment after the child is come into the world. Neglecting to make your examination at this time, you may perhaps afterwards meet with symptoms which lead you to suspect laceration; and disliking to examine the parts a day or two after delivery, for fear of alarming the patient, your mind may be kept in a state of suspense and distraction, of all others the most unpleasing to the feelings. When lacerations occur, you may always know it by the touch, allowance being made for the narrowing that takes place after the transverse distension that is occasioned by the child's head. If you still doubt, you may inspect; nor is it necessary, in doing this, to occasion much exposure of the person.

I know not whether the opinion of women is well-grounded or not, but their persuasion is, that they are very liable to catch *cold* in the uterus, and parts contiguous, after delivery. Such an opinion prevailing, it is proper that the softer parts should be immediately clothed; and though I explained the manner in which this ought to be done on a former occasion, as it is a point of practical importance, I will again advert to it. In performing this office, you take a napkin dry and properly aired by the nurse, and fold it into an oblong form, and the woman lying on her left side, you place the napkin over the pubis, carrying it up in front and behind, so as to cover the genitals. A second napkin prepared in the same manner, you pass it between the bed and the hip below, afterwards carrying it upwards, so as to fold it over the hip above, to lie smooth; and, then, taking a third napkin, you lay it over the hips above, afterwards carrying it beneath the under hip. By the application of these three napkins, the centre of the person may be kept very secure, so that the patient is shut out, as it were, from all the blood and water, and other moisture that may lie about her person, the access of the cold air being also intercepted.

In all cases where there has been a large child, or a plurality of children — or where, from other causes, there has been sudden and great collapse of the abdomen, it becomes necessary to compress the abdomen with a broad bandage, so as to give an agreeable support to the muscles, the woman feeling, after delivery, as if she was falling into pieces. This practice, which should certainly be adopted on all occasions when there is an unusual collapse of the abdomen, may, I think, be followed with advantage in most instances; and I am now accustomed to apply a broad bandage of calico, or a towel, round the clothes externally, so as to compress the abdomen, and give it support. Before the patient takes her place on the bed, for the purpose of delivery, it is better, perhaps, that this bandage should be put on; should you, however, delay its application till the delivery is completed, it may not be amiss to remember, that you ought not to raise your patient to

the sedentary posture. In these cases, she ought to lie almost still; and when the bandage is to be passed, the operator may glide his arm beneath her person, so that the hand appears on the other side; when, grasping the end of the bandage, he easily draws it forth; afterwards adjusting and fixing it, so as to give the necessary support to the parts. For this office, Gaitskell's bandage is well adapted; I will give you his rules for managing it.

After most deliveries, and especially those where there has been considerable exertion, the patient is liable to feel very exhausted and weary. This exhaustion, more especially felt immediately on the birth of the child, may be relieved by the administration of some cordial; say, for instance, of two or three tea-spoonsful of brandy, rum, or Geneva, diluted with five or six of warm water, — a little sugar and nutmeg being added to flavour the draught; it warms the stomach, and exhilarates the spirits; and, in general, the administration of it gives no dissatisfaction to the patient.

Where alarming floodings have taken place, a great deal of blood being lost, in general it becomes necessary to confine the woman strictly to one position for twelve or sixteen hours, nor ought she needlessly to stir hand or foot, lest further flooding or collapse should ensue. In ordinary cases, however, and such I am now considering, after the birth of the child and the removal of the placenta, it is enough for the patient to lie in one position for three-quarters of an hour or an hour, during which time the nurse may wash and dress the child, and set the room in order. After reposing in this manner, she is to be put into bed; and though I believe that our women after delivery might often rise and walk with impunity, like those of barbarous nations, nevertheless, in such exertion, there would be no small danger in many instances, for the womb might descend; and I have myself seen a woman perish under a flooding induced by rising to the erect position. Before delivery, therefore, the bed should be arranged; and, then, after the birth of the child and its placenta, provided the nurse thoroughly understand her duties, the patient may be deposited in it with very little disturbance, and it can seldom be necessary, or proper, to raise her to the erect posture.

As it has repeatedly happened, that within the first hour after delivery women have been carried off very unexpectedly, sometimes by internal bleeding, and more frequently by discharges of blood externally, I should recommend you, more especially if you are beginning your practice, to remain in an adjoining chamber till the patient is put to bed, seeing her afterwards before you quit her apartments, — for accidents may occur. The daughter of one of my friends was delivered by an excellent practitioner, who left her to appearance doing well. She was put to bed, and just as he was on the point of quitting the house, alarming symptoms occurring, he hurried to the bed-side, and within the compass of five minutes saw her dying and dead. These cases are not common; but their occurrence is sufficiently frequent to give value

and importance to the rule which I have just prescribed. I wish not to alarm you needlessly, by relating accidents of this kind. After delivery, in country practice especially, the vast majority of women will certainly do well; let it not be forgotten, however, that in some anomalous cases, women sometimes die very unexpectedly; and, therefore, that it is wise, (particularly when you are beginning your practice,) to remain in an adjoining apartment, and to pay your farewell visit when the patient is in bed. Finding the woman in her bed, you may satisfy yourselves whether the bandage of the *safeguard*, as it is called, (a sort of petticoat open in front,) has been brought to a due degree of tension. I should observe further, that on seeing the patient, if there has been the least proneness to flooding, you should, more especially, inquire into the circumstances of the bleeding. In the general, you are told that no discharge is felt; and when you lay your hand on the abdomen, anxious to satisfy yourselves of the fact, you find the uterus contracted, and, on compression with the hand, you do not find that blood is urged away. Sometimes, however, no bleeding really occurs, and then all is safe; but if there should happen to be an internal hemorrhage, you may distinguish it by coldness, weakness, faintness, and by the blood when you press forcibly on the abdomen.

Seeing the patient after she has been put to bed, you will then order what medicine is necessary; if she has had no child before, probably she will have no pains; but if she has had a large family, she may have very violent after-pains; and for these you may prescribe from twenty-five to thirty drops of the tincture of opium, a drachm or two of syrup of red poppies, and an ounce of camphor mixture. Of these draughts, you may order two; one to be taken an hour after you quit the patient, should pain urge; and one to be administered an hour after the preceding, should the former fail to relieve.

Although, as I have observed before, the majority of women do very well after parturition, and particularly in country places, yet it is to be remembered that they are liable to some very formidable diseases, and certainly more frequently so in large towns, and in the middle of a dense population; hence the necessity of attending to the woman during the first two or three weeks. It may not be amiss to remark, that there is a popular opinion, that if women get beyond the ninth day, they are secure. This popular opinion is not without some truth for its foundation; for almost all the more formidable accidents to which puerperal women are liable, occur within the first few days after delivery; and therefore, in town practice especially, it is most important that you should be very attentive to your patient during the first week; bring her safely through the first week, and she will generally do well.

When you are visiting a patient after delivery, one of your first objects should be to ascertain whether there be any incipient dis-

ease; for sometimes the bladder is getting overloaded with urine; or the bowels, not having been cleared out before delivery, remain constipated; or inflammation begins in the peritoneum; or there is inflammation in the breast, phlegmasia dolens, fatal cerebral disease, or the like. Now if you find your patient looking cheerful and well, and complaining of no uneasiness whatever, there is little doubt that all is secure; on the other hand, if you find something hanging about her, and preventing her getting forward in the usual manner, you should then be more solicitous in your inquiries, as the forming of disease may be suspected. In those cases, you should learn whether her nerves have been much disturbed, or whether she sleeps badly, for sometimes women are liable to puerperal irritability, or to puerperal mania. Ascertain what is the state of the bowels; sometimes they may have been constipated before delivery, and may remain so afterwards, and pain, like that of puerperal fever, may be produced, all which, however, readily yields to purgatives. Inquire, again, respecting the after-pains; when women are doing very well, they usually have the after-pains slightly; but if the puerperal fever is prevalent at the time, you may suspect this is going to attack your patient, provided these pains recur with unusual severity, and you should, therefore, direct your inquiries accordingly. Women themselves are anxious about the lochia, and you should, therefore, inquire how this is going on; if it is moderately copious, all is well; if, on the other hand, it has been suddenly suppressed, provided there be no other bad symptoms, you need not disturb yourselves, but you ought always to inquire for these symptoms, and for the symptoms of uterine inflammation more especially; for inflammation of the womb is found sometimes to occasion the suppression of the lochial discharge.

Into the state of the bladder you should not neglect to inquire; the woman generally passes her urine well enough, but sometimes she does not pass it sufficiently, and sometimes one or two pints, or one or two quarts, may accumulate, although the urine comes away in a copious stream, the bladder never being thoroughly evacuated, and enlargement of the abdomen, and violent spasms and much fever may be produced, so that the bladder is in danger of bursting; an example of which I saw not three weeks ago. The state of the breasts is not to be overlooked; often the breasts are enlarged, hardened, and painful, especially on the third day, reckoning the day of delivery as the first; and if a woman have abscesses in her breast, you should watch the bosom with more than ordinary care. If puerperal fever be prevalent, of course you will inquire whether the patient have symptoms of this, more especially on the second or third day. If the labour have been laborious, and you have been obliged to use instruments, inquire whether there has been much swelling of the softer parts, — whether the urine flow freely, — whether the rectum preserve its retentive power. If the patient have risen, which she usually

does, about the fifth day, as the general rule, then learn from her whether she has any symptoms of prolapsus uteri, a disease to which women, who have had large families, are extremely obnoxious. To restore the uterus, the horizontal posture is a great help; and if the tendency to prolapsus be strong, the patient ought to confine herself to the one posture (the horizontal) for five or six weeks together, as religiously as an oriental fanatic. In all cases, on visiting the patient, after delivery, be sure to count the pulse. I will not say the woman is always in danger when her pulse is above 100, but when this is the case, you ought always to watch her; and, on the other hand, when the pulse is below 100, when it is 96, 90, 85, or 80, in the minute, you may be sure that she is safe; there is no one symptom which indicates disease or safety so nearly and clearly as the frequency of the pulse.

Here, then, are some important points, to which your attention may be directed, for the first few days after delivery, — the state of the perineum, the state of the nerves, the state of the bowels, the state of the after-pains, of the lochia, of the bladder, of the breast — if puerperal fever be prevalent, inquire into the symptoms of this disease in the incipient state. If the labour have been more laborious than ordinary, attend to the state of the bladder, rectum, and softer parts. If the patient be risen, ascertain whether there is or is not any disposition to prolapsus of the womb. The pulse ought always to be counted, as the frequency of it is so valuable an indication of the security or danger of the patient.

When you make your visit, the day after the delivery, you will be often asked what diet the patient should employ. During the first three inflammatory days, and till the period of the milk-fever is passed away, it is best, according to the old practice, to keep the woman on very low diet, consisting of gruel or arrow-root, or milk and water, equal parts — to dilute the London milk is unnecessary, thanks to the kind and preventive forethought of those who distribute it. There are a very few cases of very delicate women, in which it may be requisite to allow beef-tea, or even solid food, from the first day, but those cases are to be looked upon as exceptions to the general rule. After the period of milk-fever is away, the patient may be gradually brought back again to her usual mode of living; beginning with beef-tea, she may then proceed to the use of the white meats, chicken, veal, fish, afterwards making use of mutton, beef, and stronger food. Although it is certainly unwise, and especially when the puerperal fever is epidemic, to bring the woman too rapidly forward as to her food, yet I am persuaded we may sometimes err in not giving enough, and especially where the woman is giving milk to support the child. With respect to the beverage, it may consist of milk and water, or toast and water, or weak black tea, before the period of milk-fever; but after the period of milk-fever is passed, a more stimulant beverage may be used, not, however, unless symptoms seem to require it.

With respect to medicines, I have to remark, that when the patient is on the whole doing well, there is little need of having recourse to them; but should the patient be solicitous, you may order something that will do no harm, to be taken four or six times during the course of the four-and-twenty hours. Now and then operative medicines are required, and on the third day the bowels may be cleared; castor oil, or rhubarb, or senna and salts, being administered for the purpose; in the general, I prefer castor oil to any other medicine; but there are some women who have a great dislike to it, and their stomachs reject it. When women are nervous, as they frequently are, or irritable after delivery, some medicines which are calculated to soothe may be given; castor, camphor, æther, valerian, opium, or, above all, hyosciamus: spermaceti draughts are as good as anything — 'the sovereignst thing on earth for an inward bruise,' as we learn from very ancient authority. If there is a little fever, (diaphoretics, for example,) the liquor ammoniæ acetatis may be given; from half an ounce to an ounce, with a little camphor mixture, may be administered, in the course of the four-and-twenty-hours; sometimes double this quantity may be taken with advantage.

Women should not be allowed to rise till the fifth day; it is an error to rise earlier, and gives rise to the coming down of the womb. When they sit up, they should do so at first for a few minutes only, then lying down again whenever any bearing down is perceived. In general, sofas are preferable to easy chairs, and the horizontal posture is better for the patient than the sedentary. Patients are not usually allowed to quit the bed-chamber till the end of the third or fourth week; in warm weather they leave the nest a little earlier.

When you make your visits, it will be expected that you see the child; of course, it is always unusually handsome, and it would be a pity to deprive the mother of the pleasure of hearing this. Indeed, to drop all badinage, it must, I think, be admitted, that the first few years of life are often full of graces. The principal points, however, to which you are to attend medically, are the bulk of the child and the state of the bowels. If the infant is large and plump, and of rapid growth, the omens are favourable; but should it waste, you will then frequently learn, on inquiry, that the bowels are acting six or eight times, or oftener, daily, and that the infant openly or clandestinely has been taking spoon-meat. One kind of food only is thoroughly well adapted to the stomach and bowels of young infants, and that is the human milk. If children thrive on spoon-meat, it is all very well, but the experiment ought never to be made wantonly, and when the food is given, even though it seem to agree with them, they ought to be closely watched. Infants sometimes thrive well enough on an artificial diet during the first fortnight, and then suddenly give way.

And here we will bring to its close that part of our course of

lectures which is purely obstetric. Of the defects in the style of these lectures, no one can be more sensible than myself; allow me to observe, however, in the way of explanation and apology, that throughout the course it has been my object to choose for you that kind of information which avails at the bed-side, and to communicate that information in a manner quaint, sometimes, no doubt, but still, perhaps, not altogether ill-calculated to strike the attention and fix upon the memory. To oratory I make no pretension; indeed, I am free to confess, that I cannot conquer my dislike to an art which practises on the infirmities of the mind, and which, provided it may persuade the mob of all ranks, seems to be equally well contented with truth and falsehood. The folly of the auditor is the strength of the orator; the strength of the philosopher is his good sense: it is difficult to sustain at once two opposite characters.

MR. GAITSKELL'S OBSERVATIONS ON HIS OBSTETRICAL BANDAGE.

"This bandage is applicable to four different periods of parturition.

"1st. *The eighth month of pregnancy.*—At this period the abdomen is often pendulous, particularly in fat women, and those who have borne many children. The over-stretching of the abdominal muscles destroys their tone, and lessens the elasticity of the integuments, which produces pain in the lumbar region, and many uncomfortable feelings. These are greatly relieved by the application of the bandage, which should be placed under the linen, and tied in the middle of the loins.

"2dly. *At the commencement of labour.*—In this instance, the bandage should be applied exteriorly to the clothes, and tied on the right side of the abdomen, the patient lying on her left. It can be applied with more facility in the erect position of the trunk.

The pressure must be regulated by the feelings of the patient, as the integuments and fascia are in some cases exquisitely tender.

When the membranes are broken, and the waters discharged, the second row of tapes must be tied; by these means, the parietes of the abdomen are brought into contact with the enlarged uterus, which, embracing it, furnishes several additional points of support: this enables that organ to act with more energy in propelling and expelling the fœtus.

3dly. *After the fœtus is expelled.*—The third row of tapes must now be employed to lessen the abdominal cavity, and compress the uterus. At this period it is most essentially useful, by facilitating the action of that organ in detaching and expelling the placenta.

4thly. *After the expulsion of the placenta.* — Many a woman, after an easy labour and early expulsion of the placenta, is subjected to an atonic state of the uterus, followed by internal flooding and death, though there is no external appearance of hemorrhage.

In this way I have known five instances of sudden death; the os tincæ closely contracted, and the cavity of the uterus distended with fluid and coagulated blood. This was not suspected, till discovered by *post-mortem* examination. The proper application of the bandage completely prevents this misfortune.

Another good effect is that of restoring the energy of the abdominal muscles, and improving the personal figure.

In illustration of the dangers pending on those females who are so fortunate as to be delivered without a supporting bandage, I subjoin a few cases.

A lady, aged thirty, of a delicate constitution, was brought to bed of a fine healthy child; had an easy labour, and the placenta followed in about fifteen minutes, with no more than the usual discharge. As the patient felt a little refreshed, the accoucheur went down to his breakfast, but had scarcely begun, when the nurse ran down, and, in a flurried accent, stated her mistress was fainting; the accoucheur immediately visited his patient, and found her as described by the nurse; the face and skin pallid — the extremities cold — the pulse feeble, quick, and scarcely perceptible, while the abdomen was greatly enlarged. On examining the napkins, they were found unsoiled; and on examining the vagina, the os tincæ was found closely contracted: upon pressing it with the finger, it produced pain, when much fluid and coagulated blood were expelled. He now thought it necessary to dilate the os tincæ, introduce the hand, and empty the uterus of its contents; and at the same time to give support, by pinning a napkin tight round the waist. By these means, the uterine contraction was completed, the hemorrhage stopped, and the patient finally, but with great difficulty, recovered.

The quantity of blood lost, on this occasion, was calculated at more than two quarts.

A similar case occurred to the same gentleman a few years after, which induced him to employ a table napkin as a bandage of support; since which, in forty years' extensive practice, he had the good fortune to meet with no more such distressing circumstances."

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THE END.

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